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PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TRADE NAME	MODEL	SET AND FOLDER No.
Admiral	Chassis 19Y4PRS, 19Y4RF Tel. Rec.	361-2
A. M. I.	PBA (Mark I)	361-3
Coronado	TV1-9404A, TV1-9406A, TV1-9407A, TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A Tel. Rec.	361-4
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Hamilton	PMX-6	361-6
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Stromberg-Carlson	XP21, XP22, X21, X22 Series Tel. Rec. Prod. Chg. Bul. 186	361-1
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PRODUCTION CHANGES
BULLETIN 186

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 8 IN SET 301

RCA VICTOR MODEL 6-HF-5 (Ch. RS-150)

RCA Victor Model 6-HF-5 (Ch. RS-150) was covered in Photofact Folder 8 - Set 301.

The following changes were made during late production.

COMPONENT CHANGES

R16 is decreased from 33Ω to 15Ω.

A 15Ω 1 watt resistor is added between M1 and R16.

C5 is omitted.

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TO INCREASE BASS RESPONSE

A 15Meg ½ watt resistor is added from the junction of R5, C8, R2 to pins 2 and 5 of V3.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 12 IN SET 330

ZENITH MODELS Y2359E, Y2359EU (Ch. 22Y20, U)

Zenith Models Y2671R, Y2671RU, Y2672E and Y2672EU (Ch. 22Y21, U) were covered in Photofact Folder 12 - Set 330.

Models Y2359E and Y2359EU (Ch. 22Y20, U) are electrically identical to the models covered except for the following changes.

NEW PICTURE TUBE

V22 is a 21ACP4A in chassis 22Y20, U.

CIRCUIT CHANGE

T4, deflection yoke, is not a plug in type. The yoke is soldered directly into the circuit in chassis 22Y20, U. Connections are the same as given for the plug in type mentioned above. The part number for the new yoke is 95-1476.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 11 IN SET 314

STROMBERG-CARLSON MODELS XP21, XP22, X21, X22 Series

Stromberg-Carlson Models XP21, XP22, X21 and X22 Series were covered in Photofact Folder 11 - Set 314.

The following changes were made during late production.

COMPONENT CHANGE

R98 is increased from 820K to 1Meg effective with serial #T48914.

TO IMPROVE AGC ACTION

R9B, AGC control, is disconnected from the 95V line and reconnected to voltage source R effective with serial #T48490.

TO WITHSTAND MOMENTARY OVERLOAD

M1, fuse, is changed to a .2 Amp. @ 250V slo-blo type effective with serial #T48914.

TO IMPROVE HORIZONTAL SYNC

R89 is increased from 15K to 27K effective with serial #T47706.

R93 is increased from 1Meg to 1.5Meg effective with serial #T47706.

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Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

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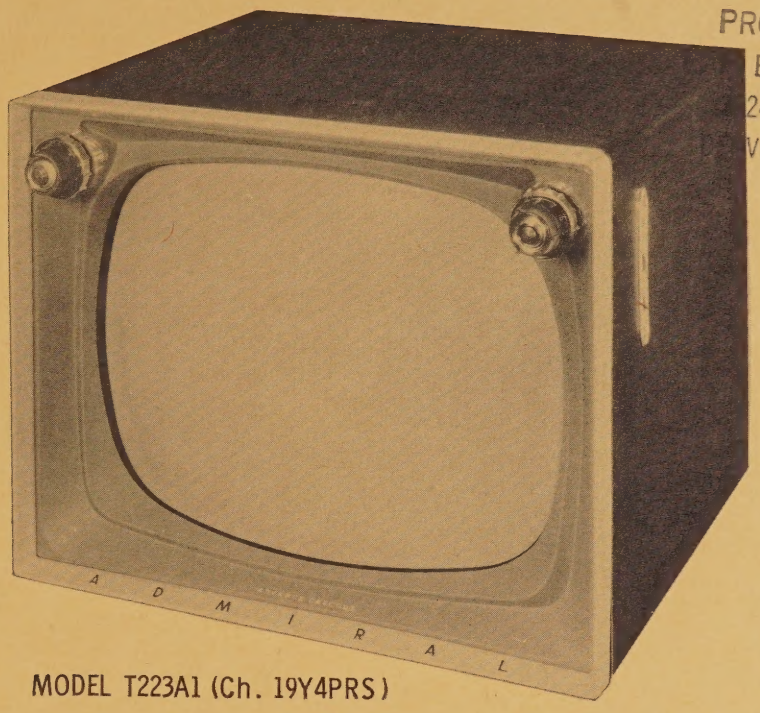
VER, COLORADO



MODEL T223A1 (Ch. 19Y4PRS)

ADMIRAL CHASSIS
19Y4PRS, 19Y4RF

TRADE NAME	Admiral	MODELS	CHASSIS
		T223A1, T223A2, T223A3	19Y4PRS
		C223A2, C223A3	19Y4RF
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois		
TYPE SET	Television Receiver		
TUBES	Eighteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING 175 Watts, 1.4 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

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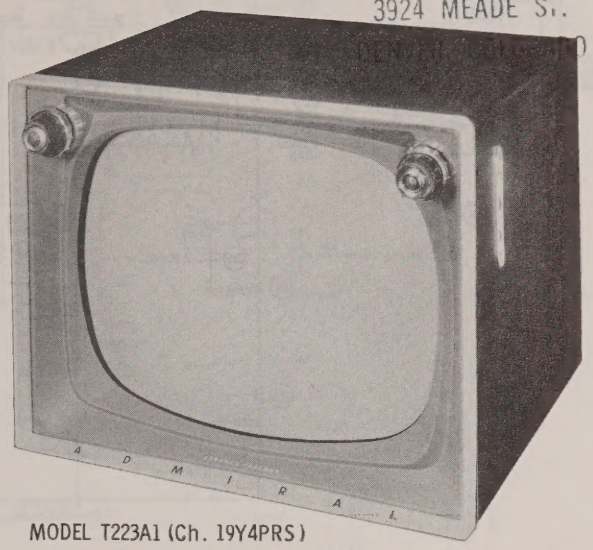
3924 MEADE ST.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type control knobs from the front.
2. Remove 8 metal screws and the rear cover.
3. Remove 2 metal screws and the remote control panel.
4. Remove 2 metal screws and the escutcheon from the side.
5. Remove 2 metal screws and the side control panel.
6. Remove the on-off, volume and contrast control assembly by depressing spring clips.
7. Remove picture tube socket, yoke plug, speaker plug and HV lead.
8. Remove 2 metal screws and the antenna terminal board.
9. Remove the wing bolt holding yoke strap.
10. Remove 1 metal screw holding the top chassis brace.
11. Remove 4 chassis bolts from the bottom.
12. Remove the chassis.
13. Remove 2 speaker nuts and the speaker with audio output transformer attached.



MODEL T223A1 (Ch. 19Y4PRS)

MODELS	CHASSIS
T223A1, T223A2, T223A3	19Y4PRS
C223A2, C223A3	19Y4RF

ADMIRAL CHASSIS
19Y4PRS, 19Y4RF

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

1. Remove 6 push-on type control knobs from the front.
2. (Consoles) Remove trim strip along top of safety glass. (Table Models) Remove 3 screws from the bottom of the bezel, pull bezel outward and down.
3. Using extreme caution, remove the safety glass and mask.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 2 or 6 and 10. Readjust the Ion Trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A10) located on top of chassis.

FUSES

One fuse is used used for LV power supply protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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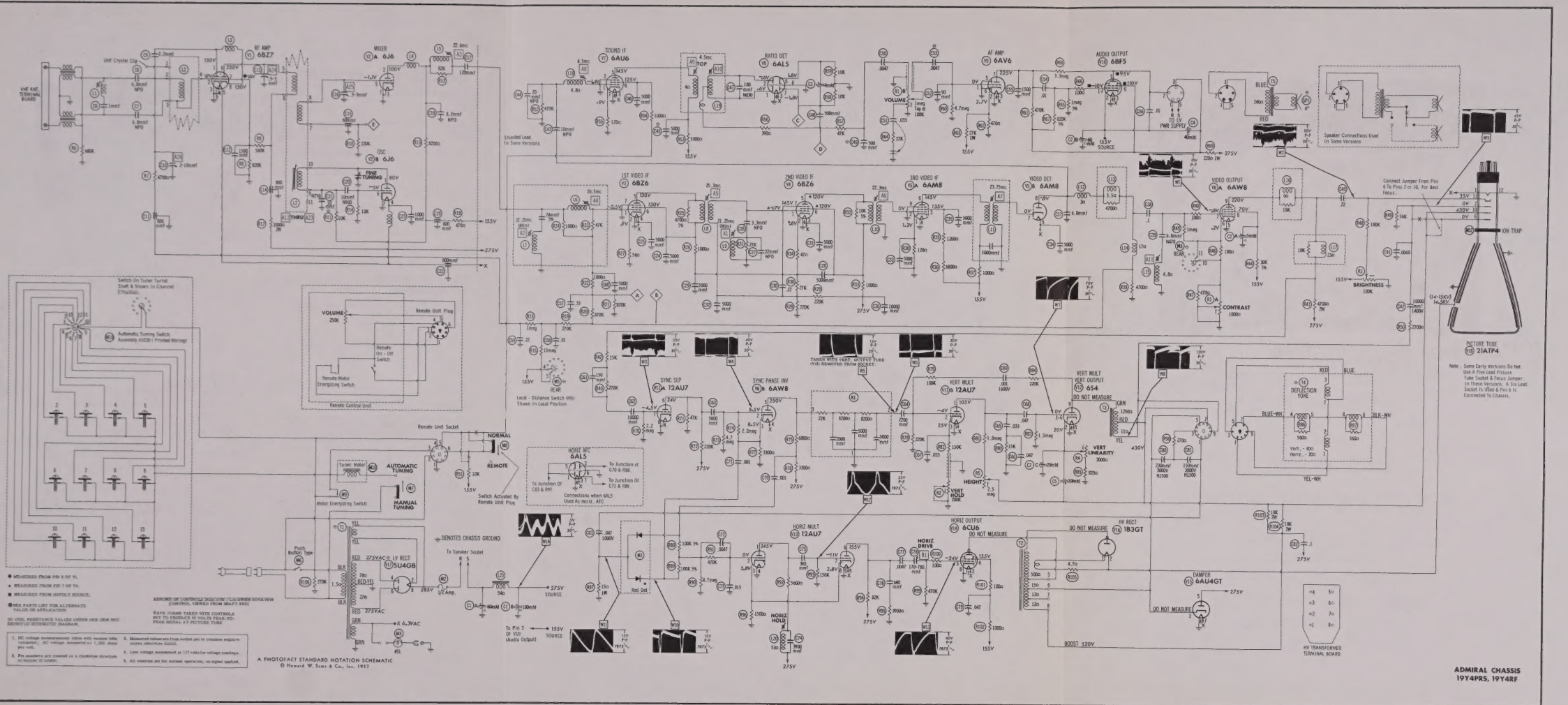
ADMIRAL CHASSIS
19Y4PRS, 19Y4RF
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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PICTURE TUBE
V18 21ATP4
RF AMP
V1 6BZ7
MIXER
V2 A 6J6
OSC
V2 B 6J6
SOUND IF
V7 6AU6
RATIO DET
V8 6AL5
AF AMP
V9 6AV6
AUDIO OUTPUT
V10 6BF5
1ST VIDEO IF
V3 6BZ6
2ND VIDEO IF
V4 6BZ6
3RD VIDEO IF
V5 B 6AM8
VIDEO DET
V5 A 6AM8
VIDEO OUTPUT
V6 A 6AW8
SYNC SEP
V11 A 12AU7
SYNC PHASE INV
V6 B 6AW8
VERT MULT
V11 B 12AU7
VERT MULT
V12 6S4
HORIZ AFC
6AL5
HORIZ MULT
V13 12AU7
HORIZ OUTPUT
V14 6CU6
HV RECT
V16 1B3GT
DAMPER
V15 6AU4GT
RECT
V17 5U4GB
VOLUME
250K
REMOTE
NORMAL
AUTOMATIC TUNING
MANUAL TUNING
FINE TUNING
CONTRAST
1000
BRIGHTNESS
100K
HEIGHT
2.5 meg
VERT LINEARITY
3000
VERT HOLD
200K
HORIZ HOLD
53K
HORIZ DRIVE
100
DEFLECTION YOKE
ION TRAP
VOLUME
1 meg Tap @ 100K
Remote Unit Plug
Remote Unit Socket
Remote Control Unit
Remote On - Off Switch
Remote Motor Energizing Switch
Switch On Tuner Turret Shaft & Shown In Channel 1 Position
Automatic Tuning Switch Assembly AS228 (Printed Wiring)
Tuner Motor
Motor Energizing Switch
Switch Actuated By Remote Unit Plug
Push Button Type
Shielded Lead In Some Versions
Speaker Connections Used In Some Versions
To Speaker Socket
To Pin 2 Of V20 (Audio Output)
To Junction Of C70 & R88.
To Junction Of C71 & R89.
To Junction Of C83 & R97.
Connections when 6AL5 Used As Horiz. AFC
Local - Distance Switch (MS) Shown In Local Position
TAKEN WITH VERT. OUTPUT TUBE (V12) REMOVED FROM SOCKET.
DENOTES CHASSIS GROUND
Connect Jumper From Pin 6 To Pins 2 or 10, For Best Focus.
Note: Some Early Versions Do Not Use A Five Lead Picture Tube Socket & Focus Jumper. In These Versions, A Six Lead Socket Is Used & Pin 6 Is Connected To Chassis.
HV TRANSFORMER TERMINAL BOARD
BOOST 520V
DO NOT MEASURE
155V SOURCE
275V SOURCE
PWR SUPPLY
VHF ANT. TERMINAL BOARD
Vhf Crystal Clip
Red Dot
◆ MEASURED FROM PIN 8 OF V1.
▲ MEASURED FROM PIN 1 OF V4.
■ MEASURED FROM OUTPUT SOURCE.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT INDICATED SCHEMATIC DIAGRAM.
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction looking at socket.
3. Measured values are from socket pin to common negative unless otherwise listed.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
KEYING OR CONTROLS (SHADED SIDE) WHERE KNOB PIN CONTROL VIEWED FROM (SHAFT END)
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 90 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

TUBE PLACEMENT CHART

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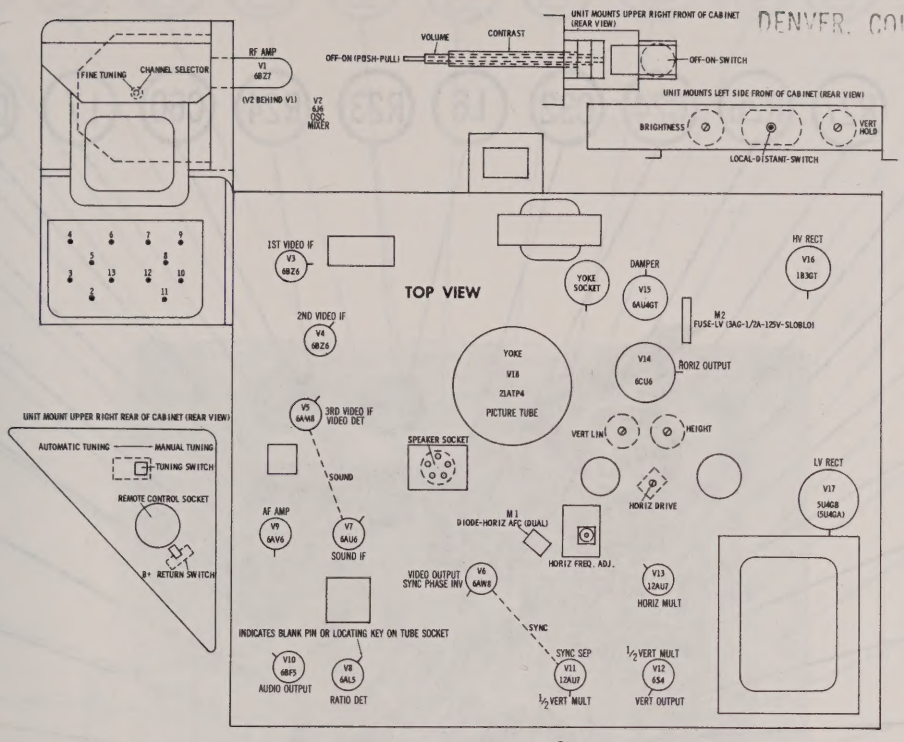


TUBE FAILURE CHECK CHART

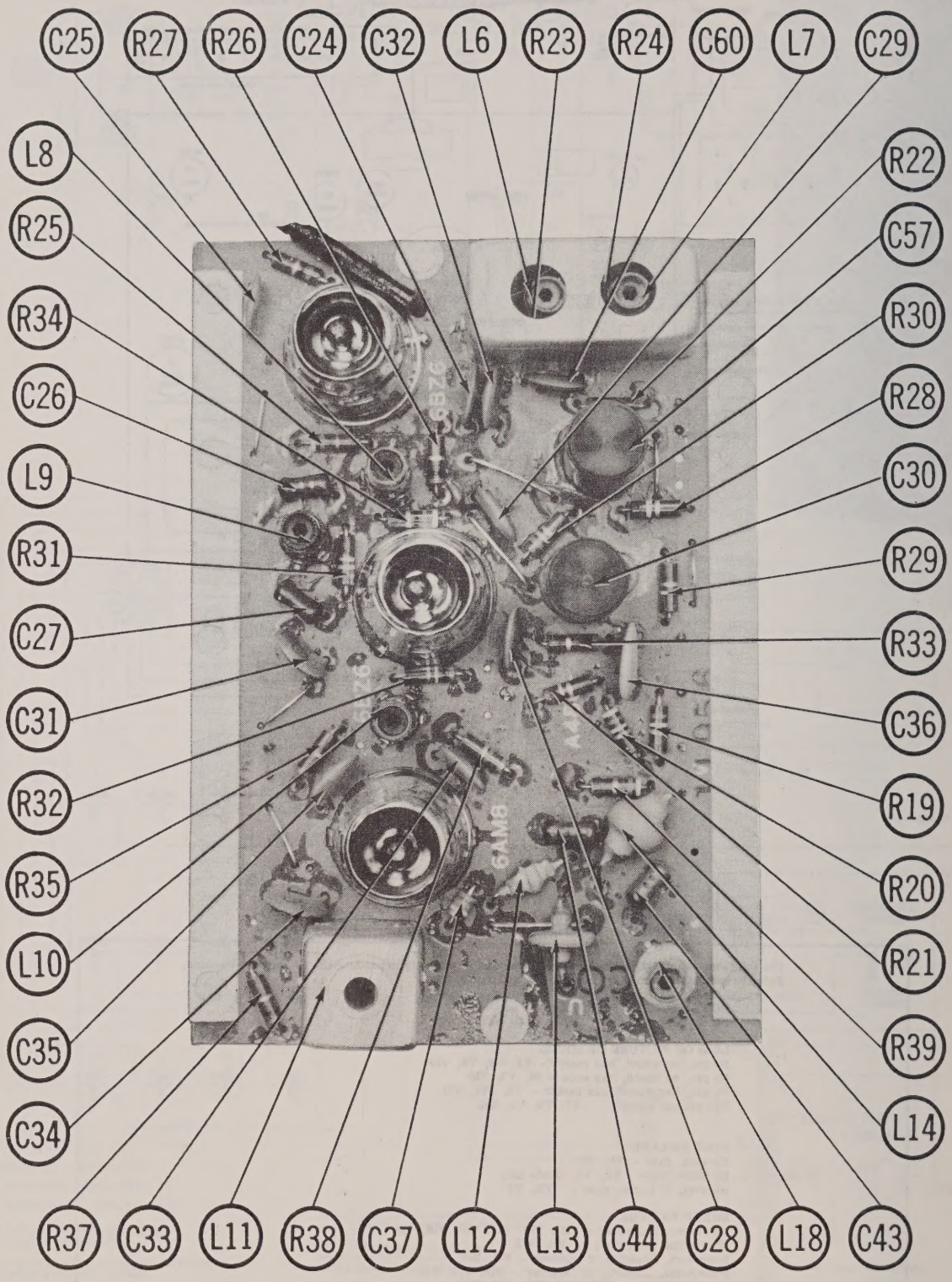
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - Fuse (M2), V17

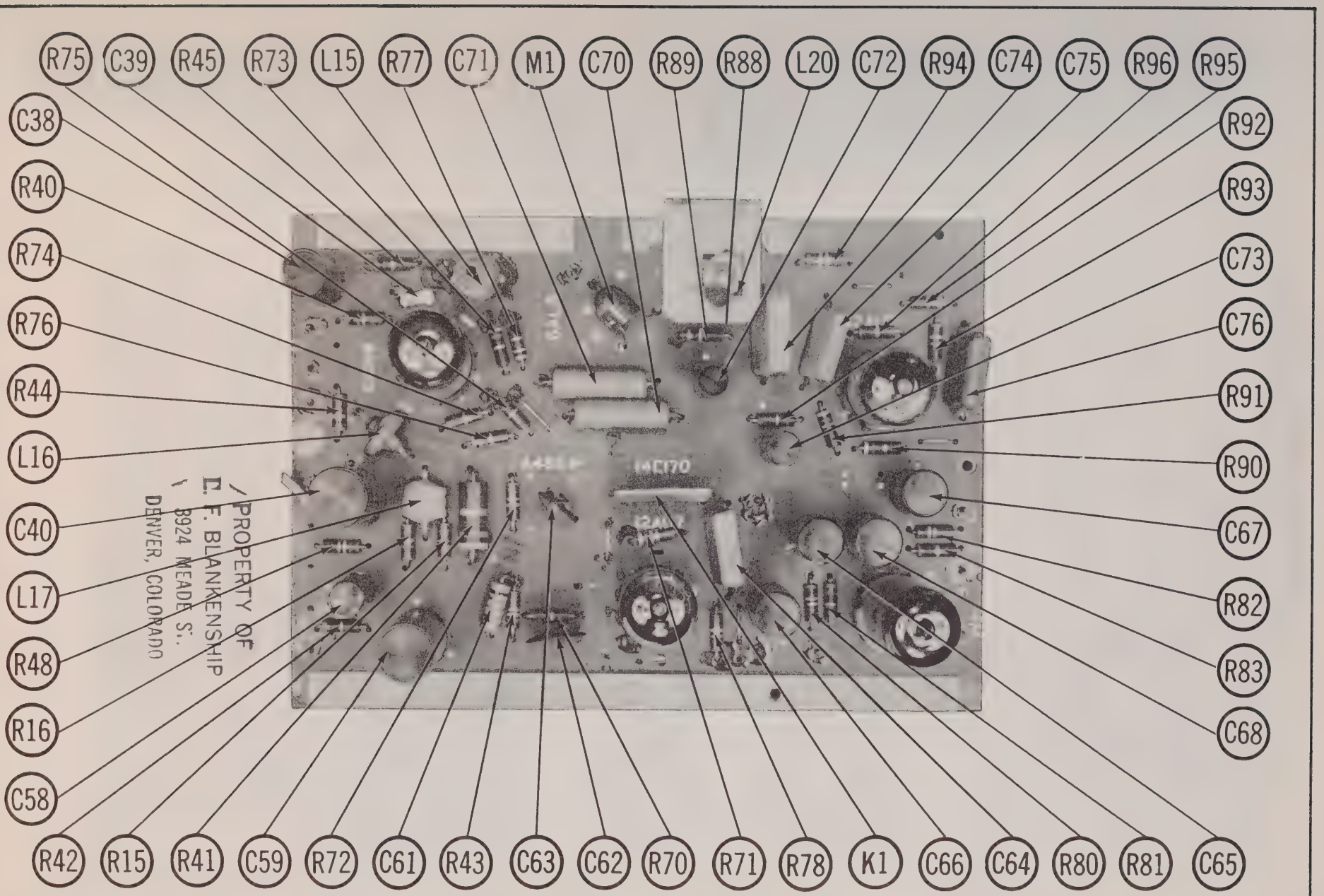
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, V5, V10
No pic, no sound, has snow - V1, V2, V10
No pic, has sound, has raster - V6, V18, V10
Has pic, no sound - V7, V8, V9, V10

SYNC FAILURE
No vert. sync - V11, V6
No horiz. sync - V11, V6, Diode (M1)
No vert. or horiz. sync - V11, V6

SWEEP FAILURE
No raster, has sound - M1, V13, V14, V15, V16, V18
No vertical deflection - V11, V12
Poor vert. linearity or foldover - V11, V12
Poor horiz. linearity or foldover - V13, V14, V15
Narrow picture - V13, V14, V15, V17, V10
Vert. off freq. - V11, V12
Horiz. off freq. - V13



VIDEO IF PRINTED BOARD



SYNC & SWEEP PRINTED BOARD

ADMIRAL CHASSIS
19Y4PRS, 19Y4RF

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Remove the mixer-oscillator (V2) from its socket and replace with a 6J6 having pin 1 removed.
Disconnect the antenna leads and connect a short across the antenna terminals.
Set the contrast control fully counter clockwise.
Connect the negative lead of a 3 volt bias supply to point Ⓐ. Positive to chassis.
For steps 1 and 2 use a strong signal from the signal generator, but for all other steps use only enough generator output to provide usable indication on VTVM. Use lowest scale on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V2). Low side to chassis.	21.25MC (Unmod)	Any non-interfering channel	DC probe thru decoupling network (Fig. 1) to point Ⓑ. Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	27.25MC	"	"	A2	"
3.	"	"	22.6MC	"	"	A3	Adjust for maximum deflection.
4.	"	"	26.5MC	"	"	A4	"
5.	"	"	25.3MC	"	"	A5	"
6.	"	"	22.3MC	"	"	A6	"
7.	"	"	23.75MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V2). Low side to chassis.	23.0MC (10MC Swp)	21.25MC 22.0MC 23.0MC 25.0MC 25.75MC 27.25MC	Any non-interfering channel	Vert. Amp. thru decoupling network (Fig. 1) to point Ⓑ. Low side to chassis.		Check for response similar to Fig. 2. If necessary SLIGHTLY adjust A1 thru A7 to obtain desired response. Adjust A4 and A5 for position of 25.75MC marker and amplitude of response curve on high frequency side. Adjust A3 and A6 for position of 22MC and 23MC markers and amplitude of response curve on low frequency side.

SOUND IF ALIGNMENT

If a signal generator of crystal accuracy is not available a local TV station signal may be used.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.01MFD	High side to pin 8 (plate) of 6AM8 (V5). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓒ. Common to chassis.	A8, A9	Attenuate generator output to maintain 1 volt at VTVM. Adjust for maximum deflection.
10.	"	"	"	"	DC probe to point Ⓓ. Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Tune in a TV station and adjust A11 for MINIMUM 4.5MC beat interference in the picture.

OSCILLATOR ALIGNMENT

Replace the original mixer-osc. tube in its socket. The correct oscillator adjustment screws are reached thru a hole in the front of the tuner as the channel switch is turned to each channel.
Connect bias as under "Video IF Alignment."
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the center of its range.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point Ⓑ. Low side to chassis.	A12	Adjust to place sound marker in trap notch as in Fig. 3. Video marker should fall at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A13	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A14	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A15	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A16	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A17	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A18	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A19	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A20	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A21	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A22	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A23	

ALIGNMENT INSTRUCTIONS (cont)

RF AND MIXER ALIGNMENT

Connect bias as under "Video IF Alignment".
The bias may be removed if it is difficult to obtain a response of sufficient amplitude. If the bias is removed, short point Ⓐ to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓔ. Low side to chassis.	A24, A25	Adjust for response curve similar to Fig. 4 with markers above 90%.
13.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A26	Adjust for response curve similar to Fig. 4. Adjust for maximum amplitude and flat-topped appearance with markers properly positioned.
14.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 4. If markers fall below 70% on any high band channel, make compromise adjustment of A24 and A25 with channel switch set to that channel. If markers fall below 70% on any low band channel, make compromise adjustment of A26 with channel selector set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

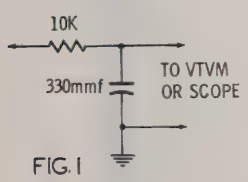


FIG. 1

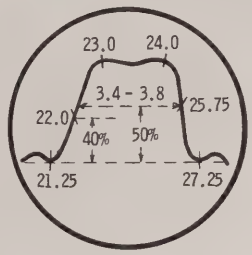


FIG. 2

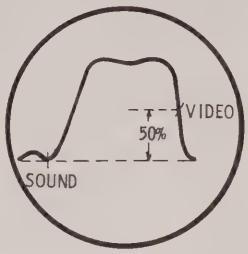


FIG. 3

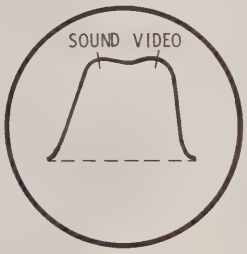
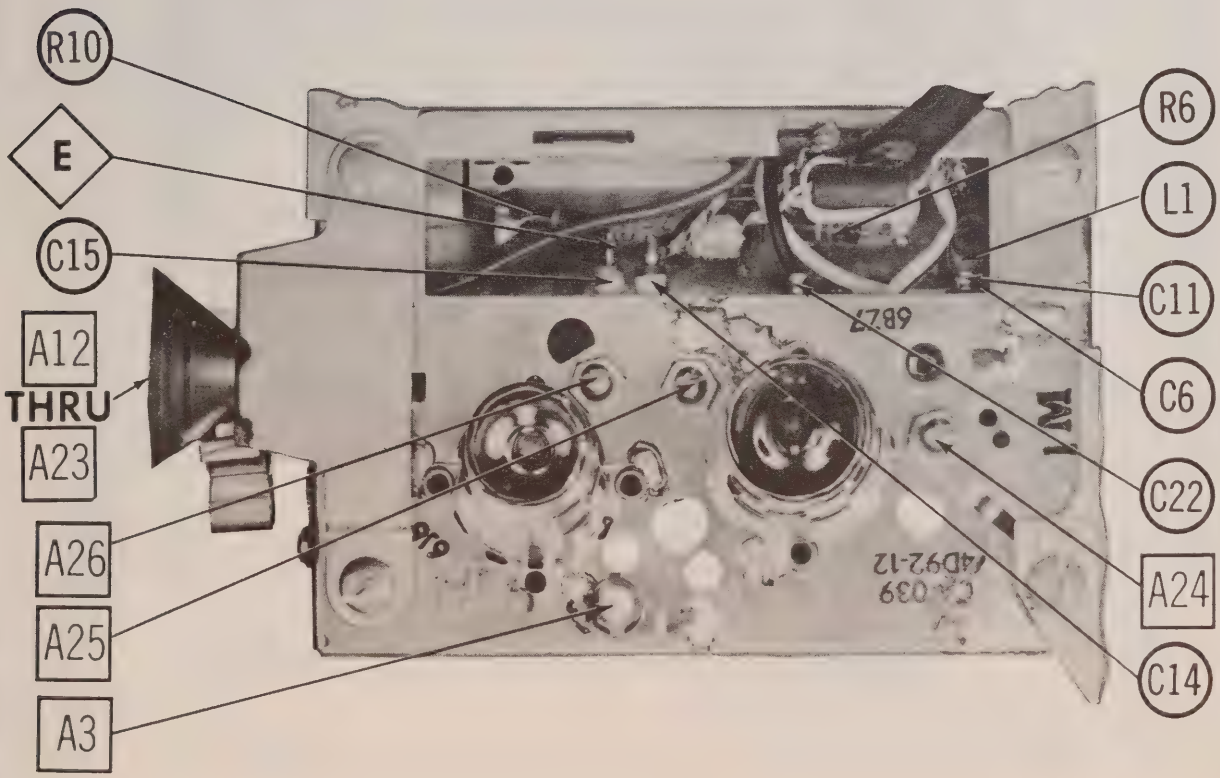
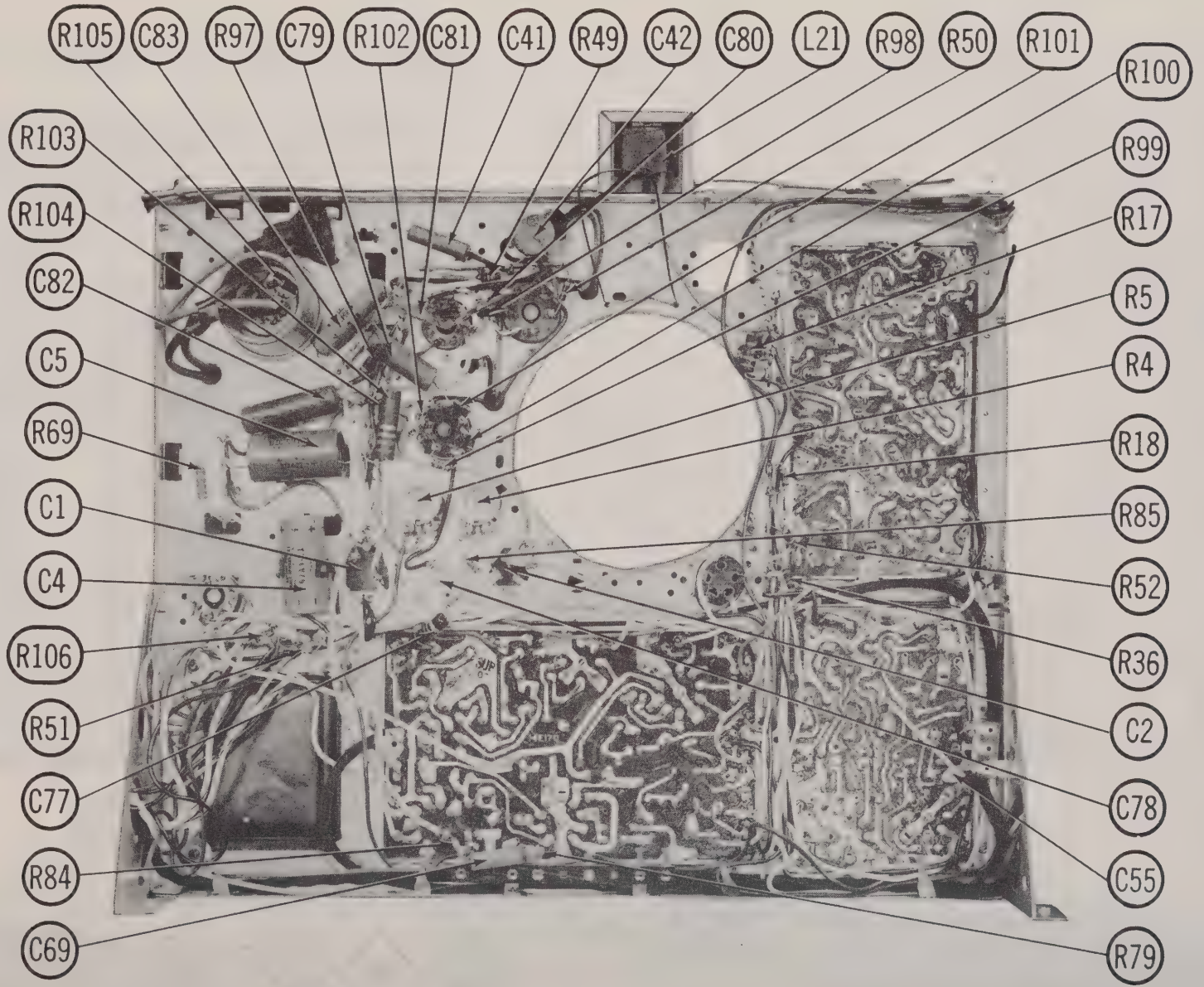


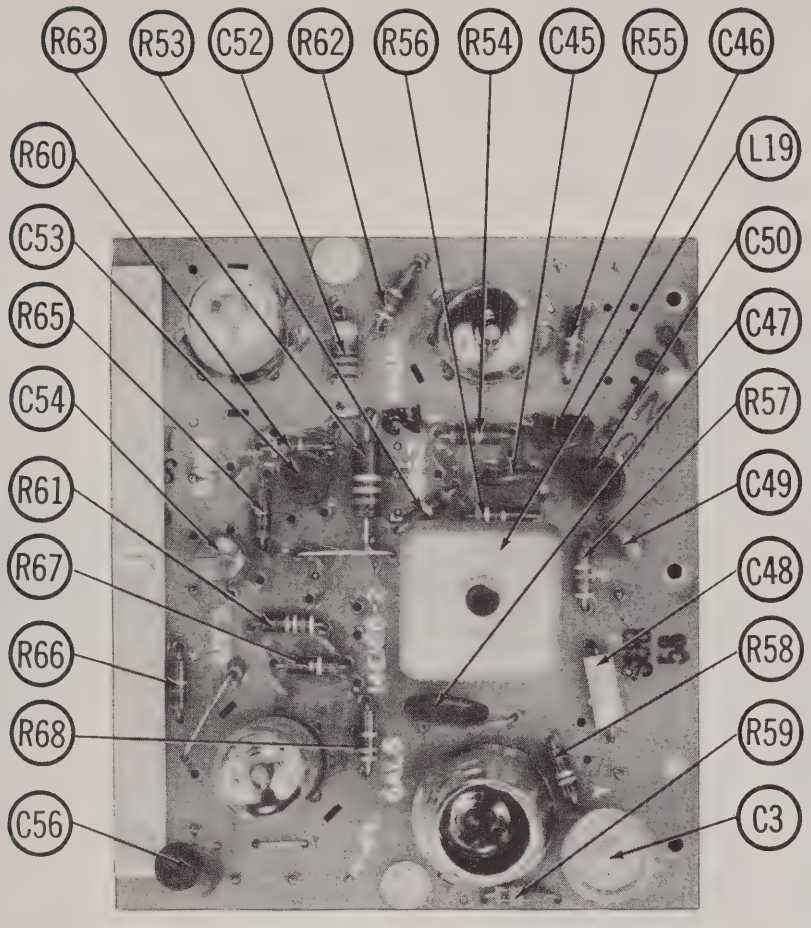
FIG. 4



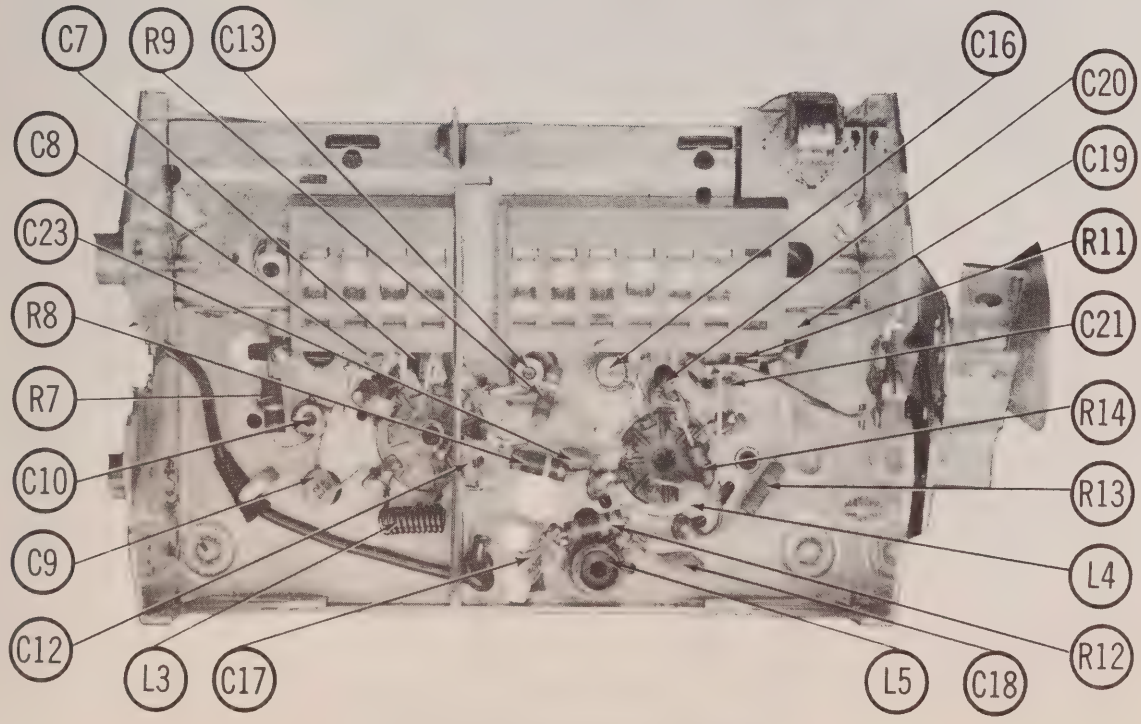
RF TUNER TOP VIEW



CHASSIS BOTTOM VIEW



SOUND PRINTED BOARD

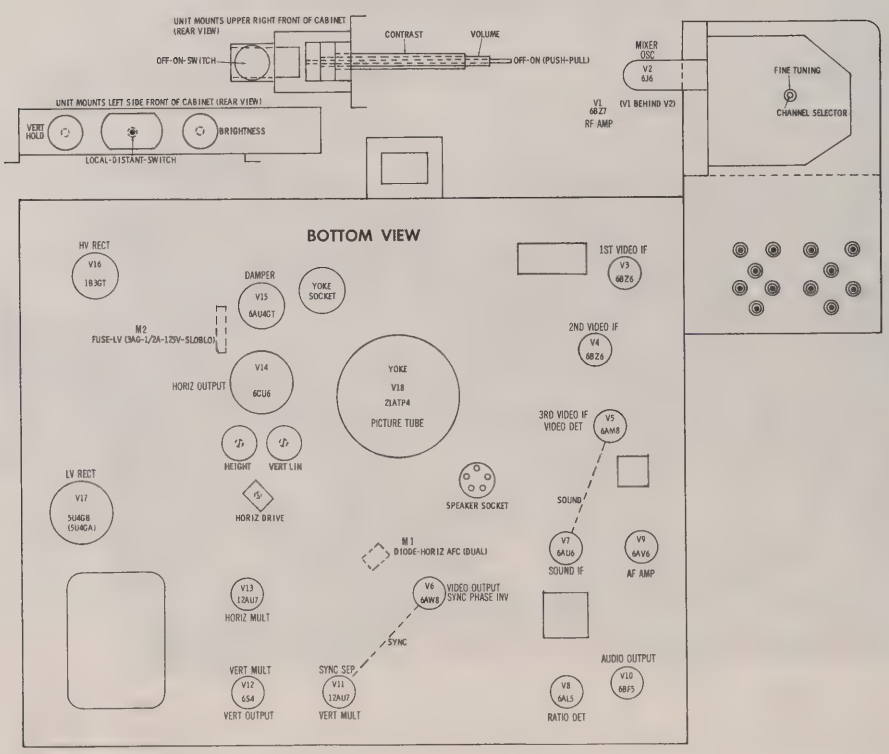


RF TUNER - BOTTOM VIEW

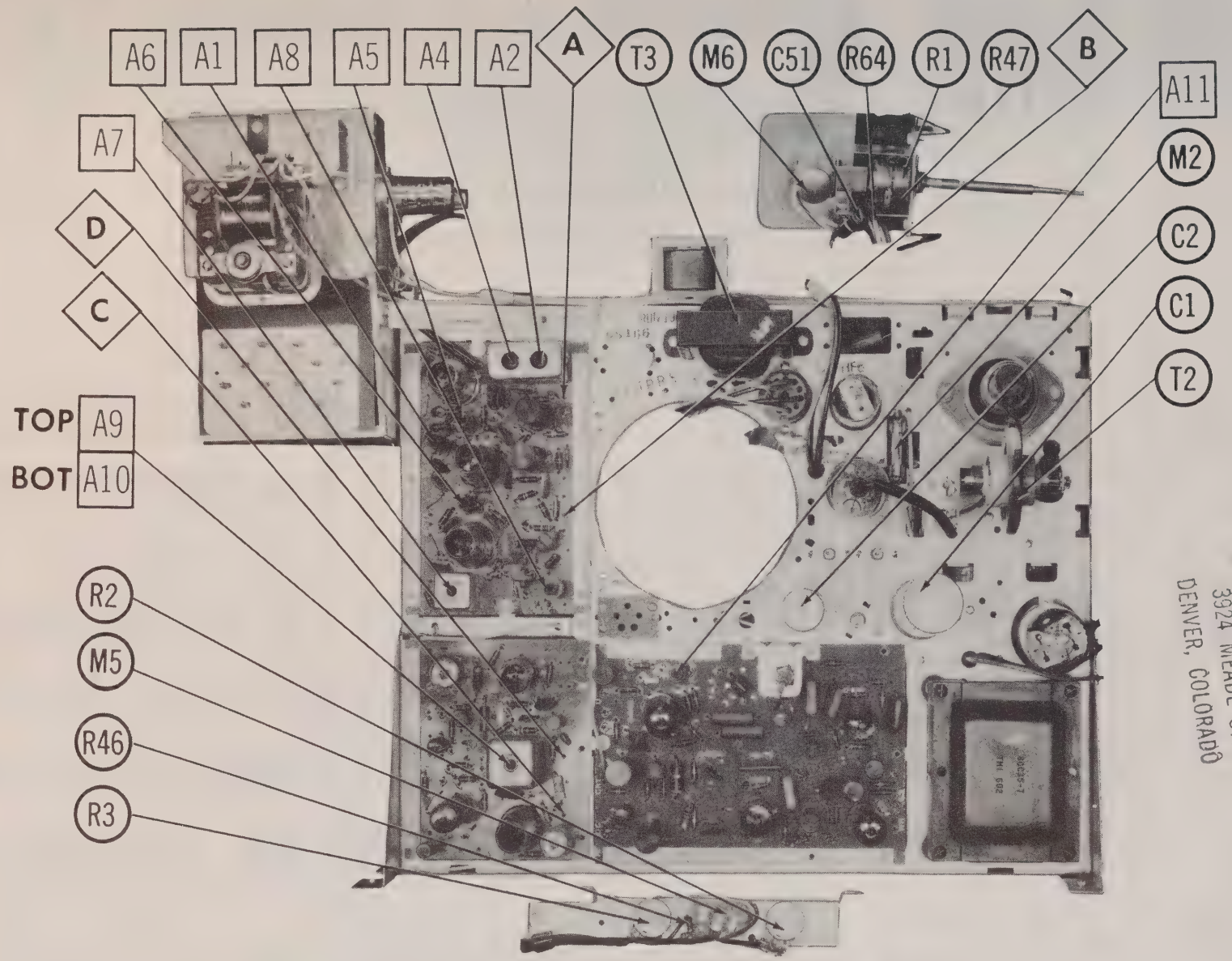
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ7	INF	1.3Meg	0Ω	0Ω	.1Ω	† 3300Ω	330K	INF	0Ω
V2	6J6	† 10K	† 8700Ω	0Ω	.1Ω	220K	10K	0Ω		
V3	6BZ6	280K	56Ω	0Ω	.1Ω	▲ 1000Ω	▲ 1000Ω	0Ω		
V4	6BZ6	100K	▲ 47Ω	.1Ω	0Ω	† 1000Ω	† 1000Ω	130K		
V5	6AM8	120Ω	.4Ω	■ 8000Ω	0Ω	.1Ω	■ 1000Ω	.3Ω	4700Ω	0Ω
V6	6AW8	3300Ω	1.4Meg	† 10K	.1Ω	0Ω	● 250Ω	1Meg	■ 30K	† 4700Ω
V7	6AU6	470K	0Ω	.1Ω	0Ω	■ 1000Ω	■ 11K	120Ω		
V8	6AL5	INF	INF	.1Ω	0Ω	10K	0Ω	10K		
V9	6AV6	4.7Meg	470Ω	.1Ω	0Ω	0Ω	0Ω	† 370K		
V10	6BF5	470K	¶	.1Ω	0Ω	† 460Ω	† 260Ω	470K		
V11	12AU7	‡ 2.7Meg	220K	● 240K	0Ω	0Ω	† 35K	2.2Meg	0Ω	.1Ω
V12	6S4	NC	● 1300Ω	1.5Meg	0Ω	.1Ω	1.5Meg	NC	NC	‡ 9000Ω
V13	12AU7	† 5600Ω	520K	1500Ω	.1Ω	.1Ω	† 82K	150K	1500Ω	0Ω
V14	6CU6	TP	.1Ω	TP	■ 1000Ω	470K	TP	0Ω	0Ω	TOP CAP ‡ 15Ω
V15	6AU4GT	NC	TP	¶	NC	† 54Ω	NC	.1Ω	0Ω	
V16	1B3GT		PINS	1 THRU 8	HAVE	INF	RESISTANCE			TOP CAP ‡ 515Ω
V17	5U4GB	NC	¶	NC	26Ω	NC	27Ω	NC	¶	
V18	21ATP4	.1Ω	56K	PIN 6 56K	PIN 10 ‡ 9000Ω	PIN 11 ● 190K	PIN 12 0Ω			

TP TIE POINT
NC NO CONNECTION
▲ MEASURED FROM PIN 7 OF V4.
■ MEASURED FROM 155 VOLT SOURCE.
† MEASURED FROM PIN 8 OF V17.
● THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION.
‡ MEASURED FROM PIN 3 OF V15.
¶ THIS READING CAN VARY GREATLY, (10K MIN.), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.



TUBE PLACEMENT CHART



PROPERTY OF
F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS TOP VIEW

ADMIRAL CHASSIS
19Y4PRS, 19Y4RF

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BZ7	
V2	Mixer-Oscillator	6J8	
V3	1st Video-IF Amp	6BZ6	
V4	2nd Video-IF Amp	6BZ6	
V5	3rd Video-IF Amp - Video Detector	6AM8	
V6	Video-Output - Sync Phase Inverter	6AW8	
V7	Sound IF	6AU8	
V8	Ratio Detector	6AL5	
V9	AF Amplifier	6AV6	
V10	Audio Output	6BW6	
V11	Sync Sep.-Vert Multi	12AU7	
V12	Vert. Mult.-Vert Output	6S4	
V13	Horiz. Multi	12AU7	
V14	Horiz. Output	6CU6	
V15	Damper	5U4GT	
V16	HV Rectifier	1B3GT	
V17	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: ADMIRAL PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	NOTES
V18	4ATP4	4ATP4 ②	4ATP4 4ATP4A ① 4ATP4	① Silver screen "95" ② Aluminized.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: ADMIRAL PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	+80	350	67T35-100	AFH3-29-3S	DC644	FP530, 9	TMD-89	GS2E-5	TVL-3839
B	+100	350							
C2A	±5	200	67T35-100	AFH3-84-50	CC636	FP2LT-9	TMT-173	T-336	TVL-3487
B	±80	200						TC302	
C	20	50							
C3	4	50	67A4-9	PRH350V4	BBR4-50	TC30	TD-4-50	MT-0504	TVA-1402
C4	40	200	67A4-31	PRH350V4	BR4035	TC68	TD-40-350	FM-3540	TVA-1541
C5	10	475	67A4-32	PRH500V10	BR1250	TC82	TD-10-500	MT-4710	TVA-1803

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C6	1.2		94D92-116	NPO-S1 1	TCZ-1	CD1C1C	TCO-1		ETCCB-V1	
C7	5.6		94D47-53	NPO-S1 6.8	TCZ-5R6	CD1C5R6C	TCO-5.6	Z7-5568	ETCCB-V5R6	NPO
C8	6.8		94D47-53	NPO-S1 6.8	TCZ-6R8	CD1C6R8C	TCO-6.8	Z7-5568	ETCCB-V6R8	NPO
C9	4.7		94D92-75	NPO-SE 3.3	TCZ-3R3	CD1C3R3C	TCO-3.3		ETCCB-V3R	
C10	2.10		94D62-71							
C11	800		94D92-70							
C12	1500			BPD-0085	DD-153	BYA1DC15	ED-001	DC5Z5	5HK-D5	
C13	5.3		94D62-72		539-3		511S-D	CT565A		
C14	800		94D62-70							
C15	60		94D92-78							
C16	5.3		94D62-72		539-3		511S-D	CT565A		
C17	1.0		55C5-66	BPD-0002J	DD-1J8	LJ0712	ED-1J0	UC-5313	SGA-712	
C18	4.3		94D62-74	NPO-S1 8.2	TCZ-8R2	CD1C8Z2C	TCO-8.2			NPO
C19	800		94D92-70							
C20	10		98A45-84							N900
C21	10		88A45-84	N750-S2 10	TCN-10	CD1C0J1	TCT-10	NT-541		N750
C22	800		94D92-70							
C23	1000			BPD-001	DD-102	BYA5DJ	ED-001	DC5J1	5HK-D1	
C24	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C25	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C26	3.3		55C5-59	NPO-S1 3.3	TCZ-3R3	CD1C3R3C	TCO-3.3	Z7-5583	ETCCB-V3R	NPO
C27	22		55C5-113	NPO-S1 22	TCZ-22	CD1C22C	TCO-22		ETCCC-Q22	NPO
C28	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C29	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C30	1.0	200	94B16-41	PCH2P1-1R		BCH2P1J		ACE502J	2SE-P12	
C31	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C32	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C33	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C34	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C35	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C36	10000		55C43-2	BPD-01	DD-103	BYA5EJ	ED-01	DC5J	5HK-E1	
C37	6.8		55B23-068	NPO-SE 6.8	TCZ-6R8	CD1C6R8C	TCO-6.8	Z7-5568	ETCCB-V6R	
C38	51	600	94B16-53	P568N-1		DF-104		AC1S01	5GA-T5	
C39	6.8		55B23-068							N470
C40	22	600	94B16-34	P68BN-22				BCH2P2J	ACE402J	4SE-P22
C41	0068	600	94B16-14	P68BN-0068	D6-682	CD1B4D68	GP-5800	GEM-5268	ETM-D68	
C42	10000	1600								
C43	10		55C5-64	NPO-S1 10	TCZ-10	CD1C0J0	TCO-10	Z7-541	ETCC-Q1	NPO
C44	20		55C5-51	NPO-S1 20	TCZ-20	CD1C0J2	TCO-20	Z7-542	ETCC-Q2	NPO
C45	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	Note 1
C46	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C47	180		55B20-62							N330
C48	500			SI 500	D6-501	LT6T5	GP-500	UC-535	SGA-T5	
C49	500			BPD-0005	DD-501	LJ075	ED-500	UC-535	SGA-T5	Note 2
C50	.0047	600		BPD-0047	D6-472	BCH2D4J	GP-4700	AC4Z47	4SE-D47	
C51	033	600		BPD-033	DD-3303	CUB4S33		GEM-4133	4SE-S33	
C52	50		55C5-4	SI 50	D6-500	LT5Q5	GP-50	UC-545	SGA-Q5	
C53	.0047	600	56C28-3	BPD-0047	D6-472	BCH2D4J	GP-4700	AC4Z47	4SE-D47	Note 3
C54	.01	600	94B16-38	BPD-01	DD-103	BCH2J	GP-10000	AC4S01	4SE-S01	
C55	1500			BPD-0015	DD-152	BYA10DJ5	ED-0015	DC5J15	5HK-D15	
C56	.01	600	55C43-3	BPD-01	DD-103	BCH2J	GP-10000	AC4S01	4SE-S01	
C57	33	300	94B16-50	P268N-33		BCH2P3J		ACE303	2SE-P33	
C58	.01	200	94B16-59	BPD-01	DD-103	BC2S1J	GP-10000	AC2S01	2SE-S01	
C59	.24	300	94B16-51	P268N-32		BCH2P2J		ACE302	2SE-P32	
C60	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C61	150		55C43-4	BI 150	D6-151	LT6T15	GP-150	UC-5315	SGA-T15	
C62	10000		55C43-2	BPD-01	DD-103	BYA5EJ	ED-01	DC5J	5HK-E1	
C63	5000		55C43-1	BPD-005	DD-502	BYA10DJ	ED-005	DC5J5	5HK-D5	
C64	2200		55B22-223	1464-00023		LR5D22			MG-222	
C65	.033	600	94B16-10	BPD-03	DF-303	BC6S33J		ACE6I33	6SE-S33	
C66	.047	600	94B16-13	BPD-06	DF-503	BC6S47J		ACE6I47	6SE-S47	
C67	.033	600	94B16-56	BPD-03	DF-303	BC6S33J		ACE4133	4SE-S33	
C68	.047	600	94B16-5	BPD-05	DF-503	BC6S47J		ACE4147	4SE-S47	
C69	.001	1800	94A2-58	P168N-001		CUB1E01		GEM-1921	1ETM-D1	
C70	.001	600	94B16-1	BPD-001	DD-103	CUB4D1	GP-1000	GEM-4121	4TM-D1	
C71	.001	600	94B16-1	BPD-001	DD-103	CUB4D1	GP-1000	GEM-4121	4TM-D1	
C72	.0047	600	94B16-38	BPD-0047	D6-472	BCH2D4J	GP-4700	AC4Z47	4SE-D47	
C73	.015	300	94B16-58	BPD-015	DD-103	BC2S1J		ACE2I15	2SE-S15	
C74	2200		55B22-223	1464-00023		LR5D22			MG-229	
C75	.039	600	94B16-37	BPD-039		BC6S39J			6SE-S39	
C76	.0047	600	94B16-38	BPD-0047	D6-472	BCH2D4J	GP-4700	AC4Z47	4SE-D47	
C77	.015	300	94B16-58	BPD-015	DD-103	BC2S1J		ACE2I15	2SE-S15	
C78	470-780		66A30-3	54B9-9		BPD-06	DF-503	CUB4S47	GEM-4147	6TM-S47	N1500 N1600
C79	.047	600	66A30-4	54B9-7		P68BN-1	DF-104	CUB4D1	GEM-501	6TM-P1	
C80	120	3000	65D20-59	65D20-59							
C81	150	3000	65D20-58	65D20-58		P68BN-1	DF-104	CUB4D1	GEM-501	6TM-P1	
C82	.1	600	94B16-7	94B16-7		P10B8M-047	DF-503	CUB1S47	GEM-1047	1DTM-S47	
C83	.047	1000	64A2-30	64A2-30							

Note 1. Some versions may use a .001 MFD in this application.
Note 2. Some versions may use a 470MMF in this application.
Note 3 Some versions may use .005MFD in this application.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise stated.

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	NOTES
R6	680K			BTS-680K	
R7	4700Ω			BTS-4700	
R8	820K			BTS-820K	
R9	560K			BTS-560K	
R10	330K			BTS-330K	
R11	100K			BTS-100K	Note 1
R12	82K			BTS-82K	
R13	5300Ω			BTS-5300	
R14	10K			BTS-10K	
R15	1Meg			BTS-1Meg	
R16	1Meg			BTS-1Meg	
R17	3300Ω	2		BTS-3300	
R18	470Ω			BTS-470	
R19	270K			BTS-270K	
R20	470K			BTS-470K	
R21	680K			BTS-680K	
R22	1000Ω				
R23	47K			BTS-47K	
R24	1000Ω				
R25	4700Ω	5%		BTS-1000	
R26	1000Ω			BTS-1000	
R27	56Ω			BTS-56	
R28	220K			BTS-220K	
R29	220K				
R30	27K				
R31	27K			BTS-27K	
R32	10K	5%			
R33	1000Ω			BTS-1000	
R34	47Ω			BTS-47	
R35	1200Ω				
R36	5600Ω				
R37	1000Ω				
R38	120Ω			BTS-120	
R39	4700Ω			BTS-4700	
R40	100Ω			BTS-100	
R41	470K	2		BTS-270K	
R42	15K			BTS-15K	
R43	270K			BTS-270K	
R44	30K	5%		BTS-30K 5%	
R45	1Meg			BTS-1Meg	
R46	180K			BTS-180	
R47	470Ω			BTS-470	
R48	180K			BTS-180K	
R49	56K			BTS-56K	
R50	2700Ω			BTS-2700	
R51	10K			BTS-10K	
R52	470K			BTS-470K	
R53	100Ω			BTS-1000	
R54	18K			BTS-18K	
R55	1000Ω			BTS-1000	
R56	130Ω			BTS-130	

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	NOTES
R58	390Ω			BTS-390	
R57	47K			BTS-47K	
R58	10K			BTS-10K	
R59	10K			BTS-10K	
R60	4.7Meg			BTS-4.7Meg	
R61	470K			BTS-470K	
R62	470Ω			BTS-470	
R63	27K	1		BTA-27K	
R64	22K			BTS-24K	
R65	1Meg 5%			BTS-1Meg 5%	
R66	100Ω			BTS-100	
R67	820K 5%			BTS 8.2K 5%	
R68	3.3Meg			BTS-3.3Meg	
R69	220Ω	1		BTA-220	
R70	2.4Meg			BTS-2.4Meg	
R71	47K			BTS-47K	
R72	240K			BTS-240K	
R73	4.7Meg			BTS-4.7Meg	
R74	2.4Meg			BTS-2.2Meg	
R75	680Ω			BTS-680	
R76	3300Ω			BTS-3300	
R77	33000Ω			BTS-33K	
R78	220K			BTS-240K	
R79	100K			BTS-100K	
R80	15K			BTS 15K	
R81	1.8Meg			BTS-1.8Meg	
R82	150K			BTS-150K	
R83	1.5Meg			BTS-1.5Meg	
R84	240K			BTS-240K	
R85	820Ω			BTS-820	
R86	560Ω				
R87	5600Ω				
R88	100K 5%				
R89	100K 5%				
R90	4.7Meg				
R91	470K				
R92	5600Ω				
R93	15K				
R94	33K				
R95	3900Ω				
R96	1600Ω				
R97	15Ω	1		BTA-15	
R98	2700				
R99	470K			BTS-470K	
R100	100Ω			BTS-100	
R101	100Ω			BTS-100	
R102	1000Ω			BTS-1000	
R103	18K	2		BTS-18K	
R104	18K	2		BTS-18K	
R105	4.7Ω			BW1-4.7	
R106	270K			BTS-270K	

Note 1. Some versions may use a 15K in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA: ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC	560VCT	5V	6.3V	80C35-7 ①	P9739 ②	P-3055 ③	P-8167 ④	26R10 ⑤	R-45BC
		5. 1.4A	2. 22A	3. 3A			9. 5A			

① Alternate part #80C35-1.
② Parallel and phase 6.3V filament winding. Tape 12.6VCT filament winding. Drill new mounting holes.
③ Taps 8.3V ② 4.5A filament winding.
④ Parallel and phase 6.3V filament windings. Drill new mounting holes.
⑤ Parallel and phase 6.3V filament winding

CONTROLS

ITEM No.	RATING: RESIST.	WATTS	REPLACEMENT DATA: ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω		75B29-2					Contrast
B	1Meg							Volume - Tap ② 100K
R2A	400K		75C13-65	B-46	A47-200K-8	QU-129	U43	Vert. Hold
B	Shaft			Not Req.	KS8-3	Not Req.	Not Req.	
R3A	100K		75C13-53	B-46	A47-100K-8	QU-128	U44	Brightness
B	Shaft			Not Req.	KS8-3	Not Req.	Not Req.	
R4A	3000Ω		75C20-7	B-8	A47-3000-8	QU-113	U8	Vert. Linearity
B	Shaft			Not Req.	KS1-1/2	Not Req.	Not Req.	
R5A	2.5Meg		75C30-1	BX-53	A47-2.5Meg-8	QU-139	SU-665	Height
B	Shaft			Not Req.	KS1-1/2	Not Req.	Not Req.	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Horiz Output Trans.	79D65-1	FB420 *	HVO 54 *		X129 *	A-8292*	F1Y-77 *	D-49 *
T3	Vert Output Trans.	78H43-4	Z1907 ①	A-4824 ①		V312	A-8241	26B54	A-119X
T4A	Yoke(90°) Horiz. (18.5MH) Vert (57MH)	94D87-10 ③ 94D87-8 ③	DF600 ③	MDF-82 ③	235D6 ③	Y90F19/43 ③	DY-16A ③	Y-16 ③	Y-43-3 ③
B									

① Drill new mounting hole(s).
② Cut and tape yellow lead.
③ Includes resistors R85, R87 and yoke plug (Part #88A18-3).
④ Alternate yoke part number
⑤ Use original horizontal damping network.
⑥ Loosen and rotate core clamp 180°, then connect same as original.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTION	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5	5	5	5	5	5	4	5
6	2	4		4	6	3	6
8	1	1	1	1	8	1	4
Special Note: **	①	①	①	①	①	①	①

① Filament requires two turns.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI	SEC	REPLACEMENT DATA: ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	2600Ω	3-4Ω	Part of Spkr	TS308 ①	A-3958 ①	A-3678 ①	22B45 ①	S-1X ①	① Bend ears down. ② Tape tap on primary winding

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V C IMP	REPLACEMENT DATA: ADMIRAL PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω	78C11-4 ①	6A1	① Includes speaker plug and audio output transformer. ② Some versions use an alternate speaker which includes the plug and audio output transformer. Check part number stamped on the speaker when replacing.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	NOTES
L1	FM Trap	94D92-67	
L2A	Ant., RF, Mixer Grid, Osc. Colls	94D92-53	Channel 2
B	Ant., RF, Mixer Grid, Osc. Colls	94D92-53	Channel 3
C	Ant., RF, Mixer Grid, Osc. Colls	94D92-54	Channel 4
D	Ant., RF, Mixer Grid, Osc. Colls	94D92-55	Channel 5
E	Ant., RF, Mixer Grid, Osc. Colls	94D92-56	Channel 6
F	Ant., RF, Mixer Grid, Osc. Colls	94D92-57	Channel 7
G	Ant., RF, Mixer Grid, Osc. Colls	94D92-58	Channel 8
H	Ant., RF, Mixer Grid, Osc. Colls	94D92-59	Channel 9
I	Ant., RF, Mixer Grid, Osc. Colls	94D92-60	Channel 10
J	Ant., RF, Mixer Grid, Osc. Colls	94D92-61	Channel 11
K	Ant., RF, Mixer Grid, Osc. Colls	94D92-62	Channel 12
L	Ant., RF, Mixer Grid, Osc. Colls	94D92-63	Channel 13
L3	Neut. Coil	94D92-68	
L4	RF Choke	94D92-69	
L5	Mixer Plate Coil	94D92-64	

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L6	1st. Video IF	72C132-5				
L7	27.25MC Trap	72C132-5				
L8	2nd. Video IF	72C132-4				
L9	21.25MC Trap	72C132-3				
L10	3rd. Video IF	72C132-2				
L11	45.75MC Trap	72B152-3				
L12	Series Peaking Coil	73A94-2	19-3026	TV-180	6178	Includes .005MFD Cap.
L13	Series Peaking Coil	73B3-26	19-3180 *	TV-184 *	6180 *	35 Microhenries 188 Microhenries, wound on 4700Ω resistor
L14	Shunt Peaking Coil	73B6-35	19-3500		6174	505 Microhenries
L15	Series Peaking Coil	73B6-16	19-3250 ▲	TV-185 ▲	6181 ▲	264 Microhenries, wound on 18K resistor
L17	Shunt Peaking Coil	73A11-1			6186 ▲	780 Microhenries, wound on 10K resistor,
L18	Sound IF	72C132-1				Tertiary winding -.9Ω
L19	Ratio Detector	72C88-4				

* Parallel with 4700Ω resistor.
▲ Parallel with 18K resistor.
▲ Parallel with 10K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI	SEC	REPLACEMENT DATA: ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L20	53Ω		94C17-4		TV-164					

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L21	.220	54Ω	1.3 HY	74B18-13	C5037①	C-2996 ①	C-2326①	26C44 ①	C-24X

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ADMIRAL PART No.	REPLACEMENT DATA	
K1	Vert. Integrator	22K, 8200Ω, 8200Ω, 2000MMF, 5000MMF, 5000MMF	63C9-1	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-110 PC-100 115TM1 1405-01 V-1

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT (Measured)	ADMIRAL PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	
M1		93A5-2 ①	1215 ① ②		1T1 ① ②			

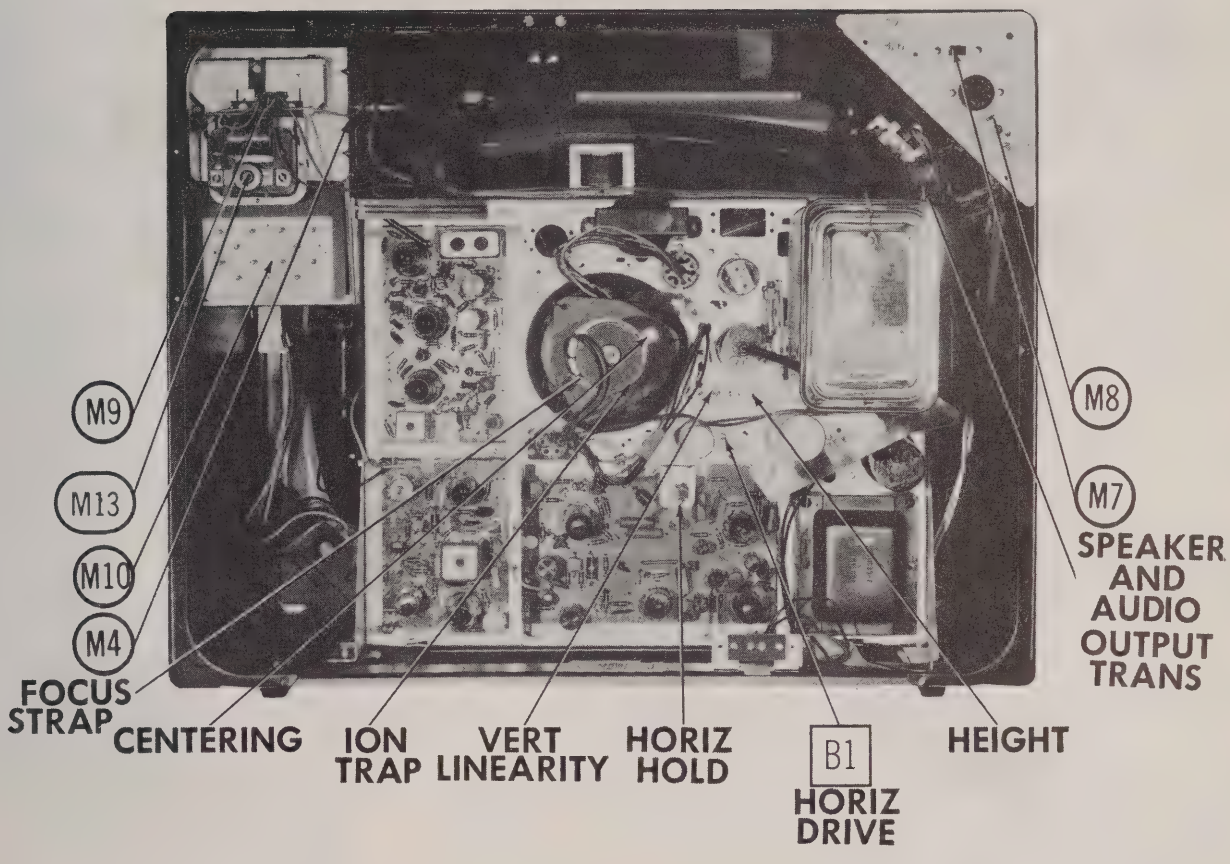
① Selenium type, horiz. phase detector.
② 2 Required.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ADMIRAL PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	1/2A 125V S/B	87A4-4	84A5-4	313.500 (3AG 1/2A S/B)	357001	MDL 1/2	4405

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M3	Pilot Light	81A1-12	#51 Type
M4	Tuner	94D92-12	VHF
M5	Switch	76A31-1	Local-distant, rotary wafer type, side mount
		76A31-3	Local-distant, front mount
M6	Switch	77A58	On-off (pushbutton type)
M7	Switch	77A59-2	Auto-manual, Slide type (SPDT)
M8	Switch	77A65-1	B+ return, slide type
M9	Switch	77A63	Motor Energizing
M10	Switch	32E265-1	Automatic tuning, includes printed board
M11	Centering device	94A71-1	
M12	Ion Trap	94A15-4	
M13	Motor	91C18	Motor & gear assy. Automatic tuning
	Printed Board	14E169	Video IF
	Printed Board	14E168-2	Sound IF
	Printed Board	14E170	Sync



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.

2. Set the brightness and contrast controls for a normal picture.

3. Turn the horizontal hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

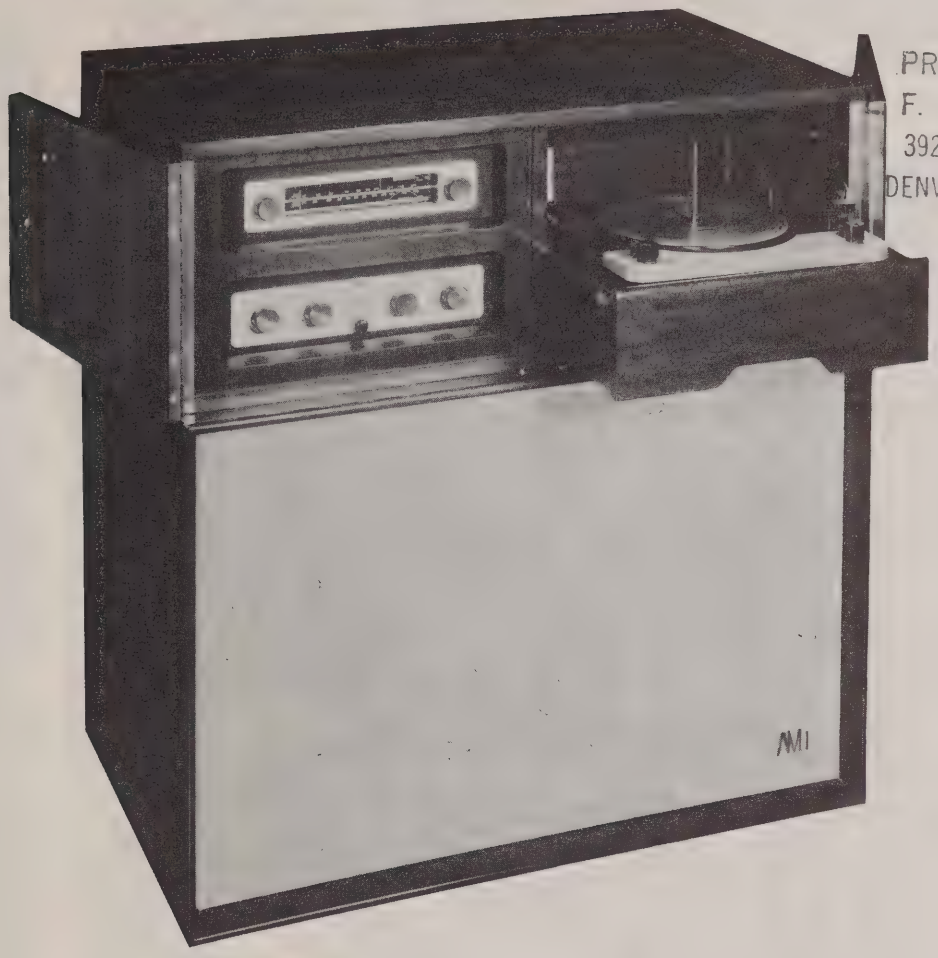
4. Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.

5. Turn to an unused channel. If vertical lines appear near the center of the screen, slowly adjust the horizontal drive trimmer (B1) until white lines disappear.

6. If in step 5 the horizontal drive was adjusted, tune in a TV station and repeat steps 3 and 4. Check horizontal sync by switching off channel and back again.

A. M. I.
MODEL PBA (Mark 1)

A. M. I.
MODEL PBA (Mark 1)



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A. M. I.
MODEL PBA (Mark 1)

TRADE NAME	A. M. I. Model PBA Mark 1
MANUFACTURER	Automatic Musical Instruments, Inc., 1500 Union Ave., S. E., Grand Rapids 2, Mich.
TYPE SET	AC Operated FM-AM Tuner With 5 Channel Audio Amplifier And 4 Speed Automatic Record Changer
TUBES	Eighteen
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING 130 Watts
TUNING RANGE--BROADCAST	530KC - 1650KC FM 88MC - 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR V-M MODEL 1200A - PHOTOFACT SET 353 FOLDER 16.

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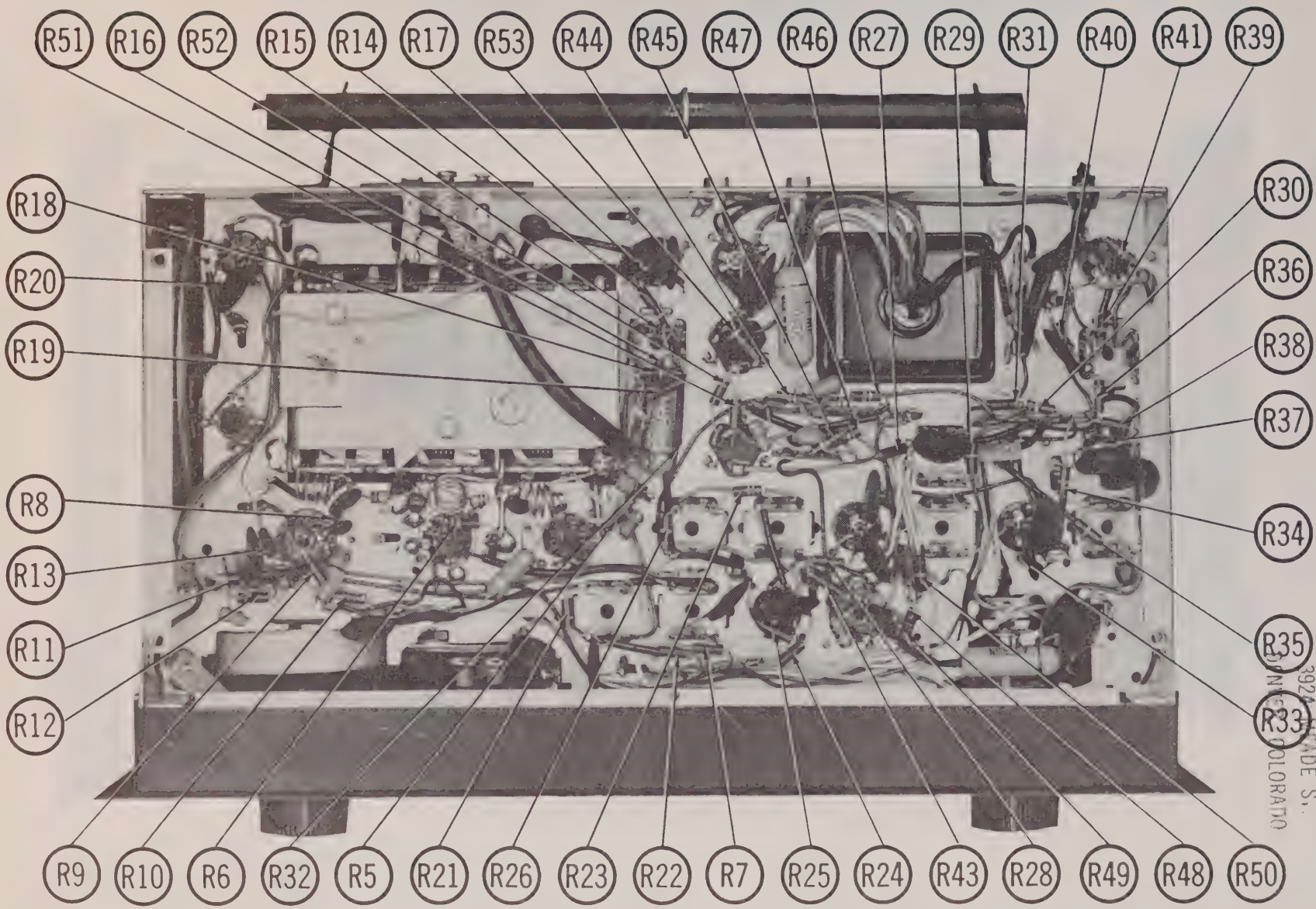
TUNER CHASSIS - CAPACITOR IDENTIFICATION



TUNER CHASSIS - RESISTOR IDENTIFICATION

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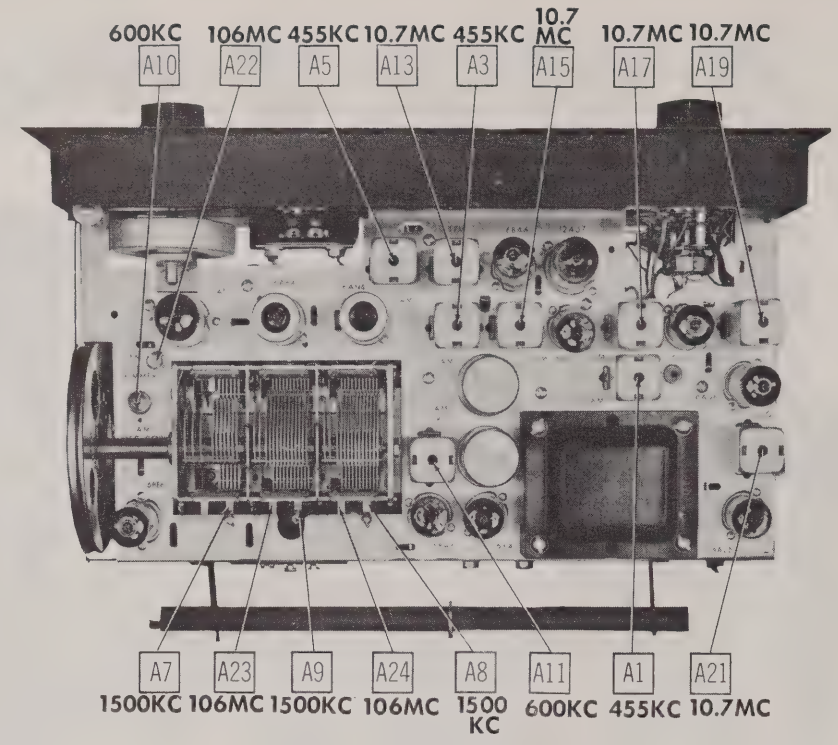
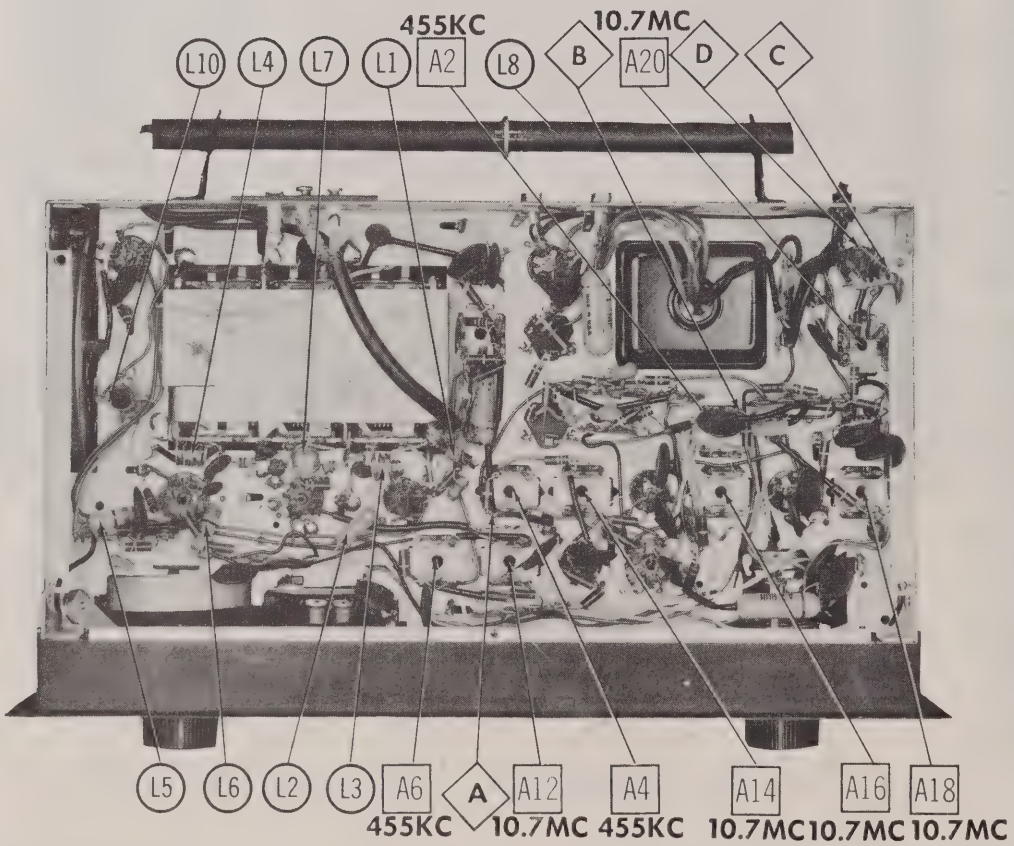


TUNER CHASSIS TOP VIEW - ALIGNMENT IDENTIFICATION



TUNER CHASSIS BOTTOM VIEW - ALIGNMENT & INDUCTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 6BE6 (V5). Low side to chassis.	455KC (400∿ Mod)	AM	Tuning gang fully open.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	200MMF	Across AM antenna terminals.	1500KC	"	1500KC	"	A7, A8, A9	"
3.	"	"	600KC	"	600KC	"	A10, A11	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (unmod)	FM	Point of non-interference.	DC probe thru 100K to point Ⓑ. Common to chassis.	A12, A13, A14, A15, A16, A17	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe thru 100K to point Ⓒ. Common to chassis.	A18, A19, A20	"
6.	"	"	"	"	"	DC probe thru 100K to point Ⓓ. Common to chassis.	A21	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference.	Vert. amp. thru 100K to point Ⓑ. Low side to chassis.	A12, A13, A14, A15, A16, A17	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. amp. thru 100K to point Ⓒ. Low side to chassis.	A18, A19, A20	"
6.	"	"	"	"	"	Vert. amp. thru 100K to point Ⓓ. Low side to chassis.	A21	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A20 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω carbon resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	106MC	FM	106MC	DC probe thru 100K to point Ⓑ. Common to chassis.	A22, A23, A24	Adjust for maximum deflection.
8.	"	"	90MC	"	90MC	"	A22, A23, A24	"

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FIG. 1

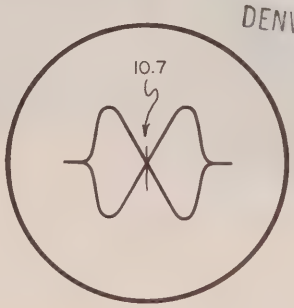
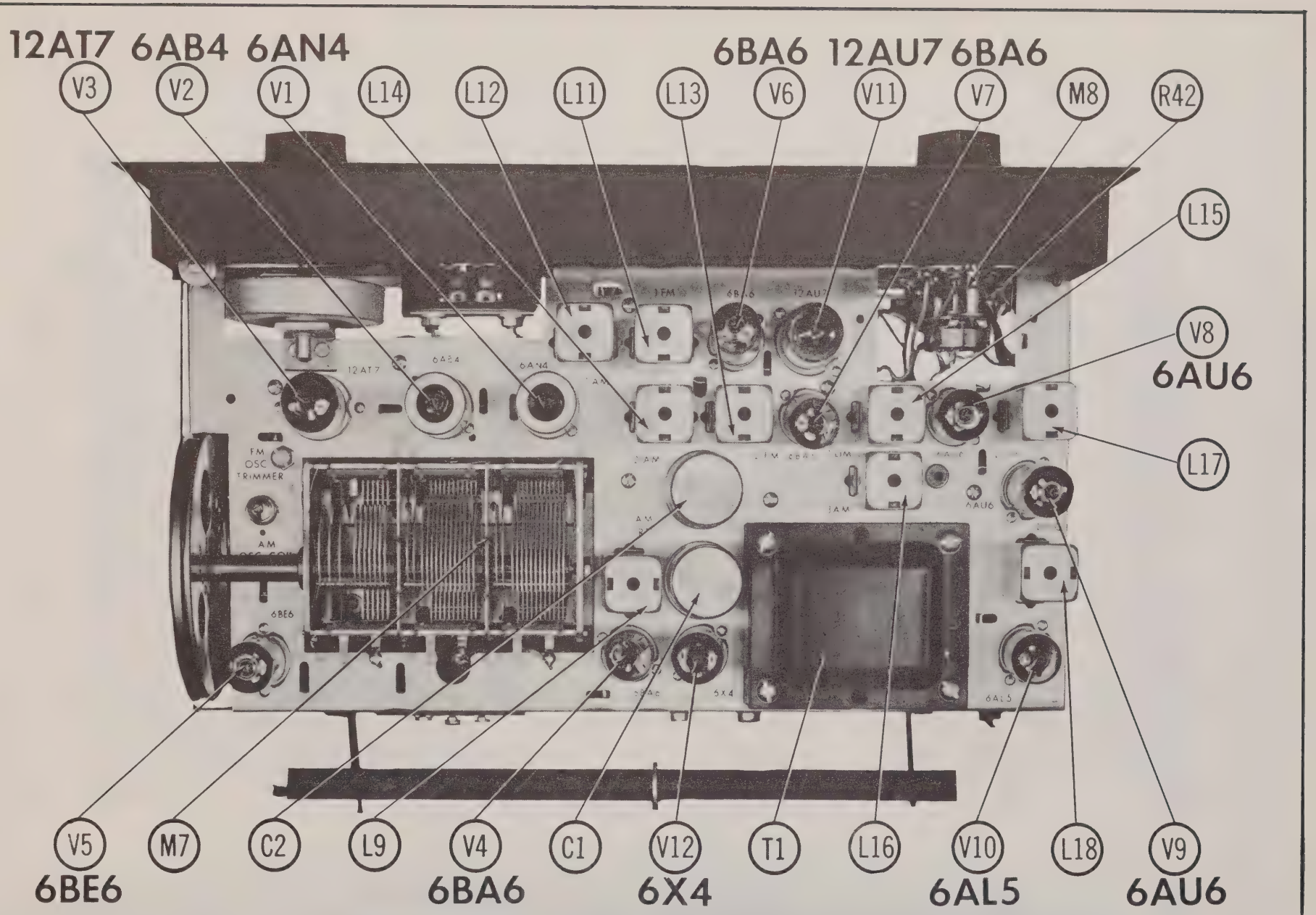
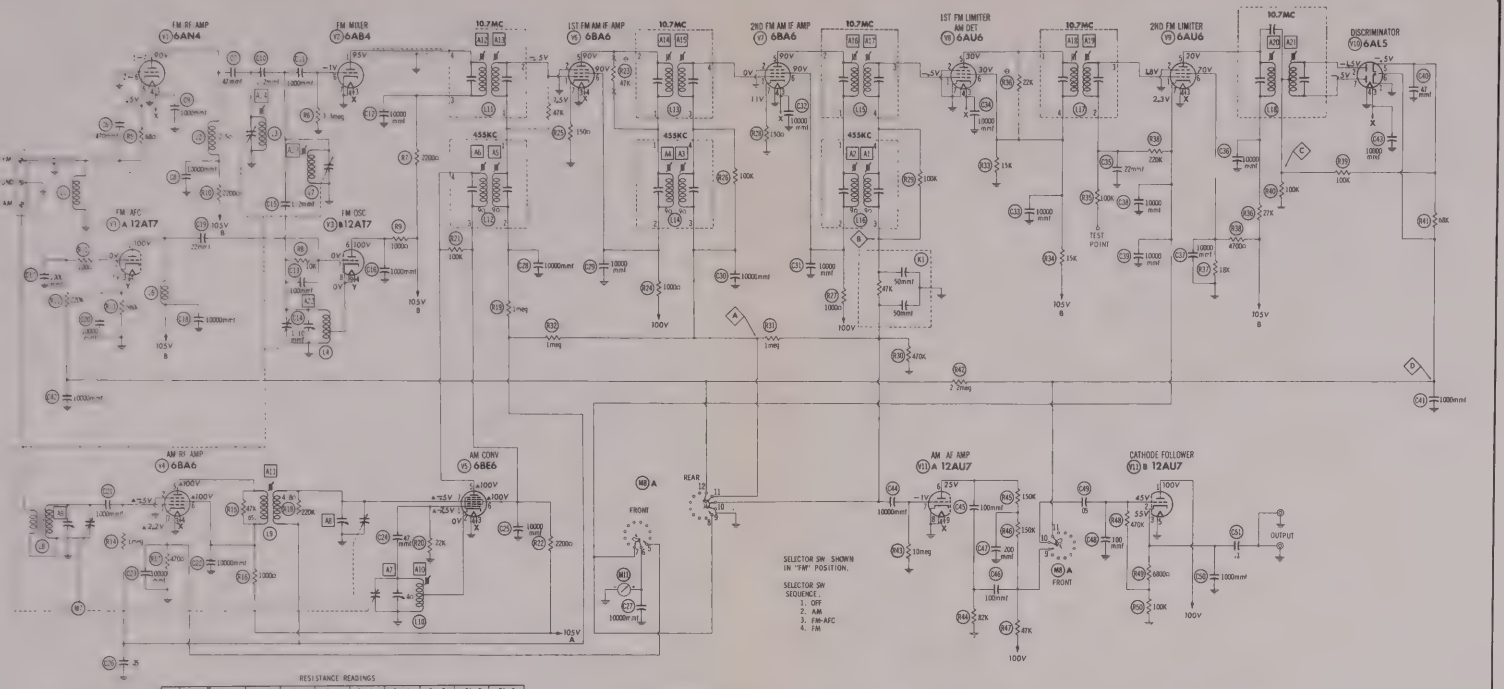


FIG. 2



TUNER CHASSIS - TUBE & COIL IDENTIFICATION



RESISTANCE READINGS

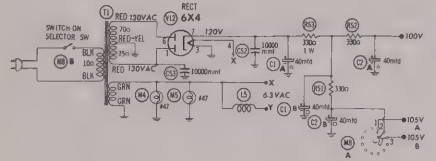
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AN4	* 280Ω	0Ω	2Ω	0Ω	68Ω	0Ω	* 280Ω		
V2	6AB4	* 280Ω	0Ω	2Ω	0Ω	0Ω	3.3Meg	0Ω		
V3	12AT7	* 660Ω	220K ■ 2.7Meg	560Ω	7Ω	7Ω	† 1600Ω	10K	2Ω	2Ω
V4	6BA6	▲ 3.5Meg	0Ω	0Ω	2Ω	▲ † 1600Ω	▲ † 1600Ω	▲ 220Ω		
V5	6BE6	22K	5Ω	2Ω	0Ω	▲ † 2800Ω	▲ † 2800Ω	▲ 2.5Meg		
V6	6BA6	2Meg	0Ω	0Ω	2Ω	† 1600Ω	† 1600Ω	150Ω		
V7	6BA6	0Ω	0Ω	2Ω	0Ω	† 1600Ω	† 1600Ω	150Ω		
V8	6AL6	47K ▲ 5.0K	0Ω	2Ω	0Ω	▲ 0.5K † 1.2K	▲ 1.2K † 1.2K	0Ω		
V9	6AU6	220K	0Ω	2Ω	18Ω	* 25K	* 4500Ω	450Ω		
V10	6AL5	0Ω	100K	2Ω	0Ω	200K	180K	100K		
V11	12AU7	* 660Ω	570K	110K	1Ω	0Ω	† 350K	10Meg	0Ω	2Ω
V12	6X4	75Ω	0Ω	0Ω	2Ω	0Ω	0Ω	70Ω	20K UNIT	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
† MEASURED FROM PIN 7 OF V12
▲ TAKEN IN "AM" POSITION
■ TAKEN IN "FM-AFC" POSITION

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. No signal applied for voltage measurements.



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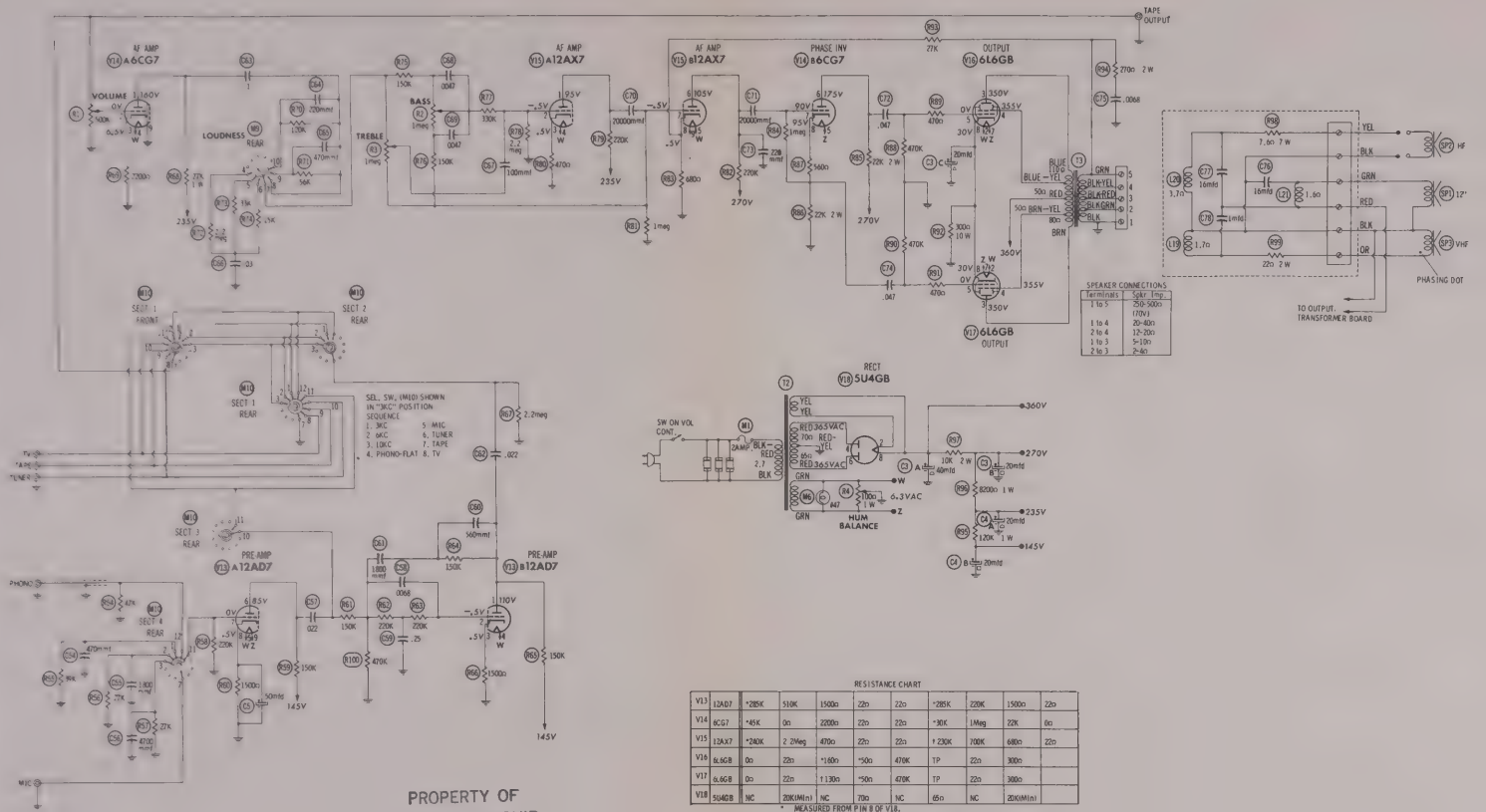

RESISTANCE CHART

V13	12AD7	*285K	510K	1500Ω	22Ω	22Ω	*285K	220K	1500Ω	22Ω
V14	6CG7	*45K	0Ω	2200Ω	22Ω	22Ω	*30K	1Meg	22K	0Ω
V15	12AX7	*240K	2.2Meg	470Ω	22Ω	22Ω	† 230K	700K	680Ω	22Ω
V16	6L6GB	0Ω	22Ω	†160Ω	*50Ω	470K	TP	22Ω	300Ω	
V17	6L6GB	0Ω	22Ω	†130Ω	*50Ω	470K	TP	22Ω	300Ω	
V18	5U4GB	NC	20K(Min)	NC	70Ω	NC	65Ω	NC	20K(Min)	

* MEASURED FROM PIN 8 OF V18.
NC NO CONNECTION.
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected

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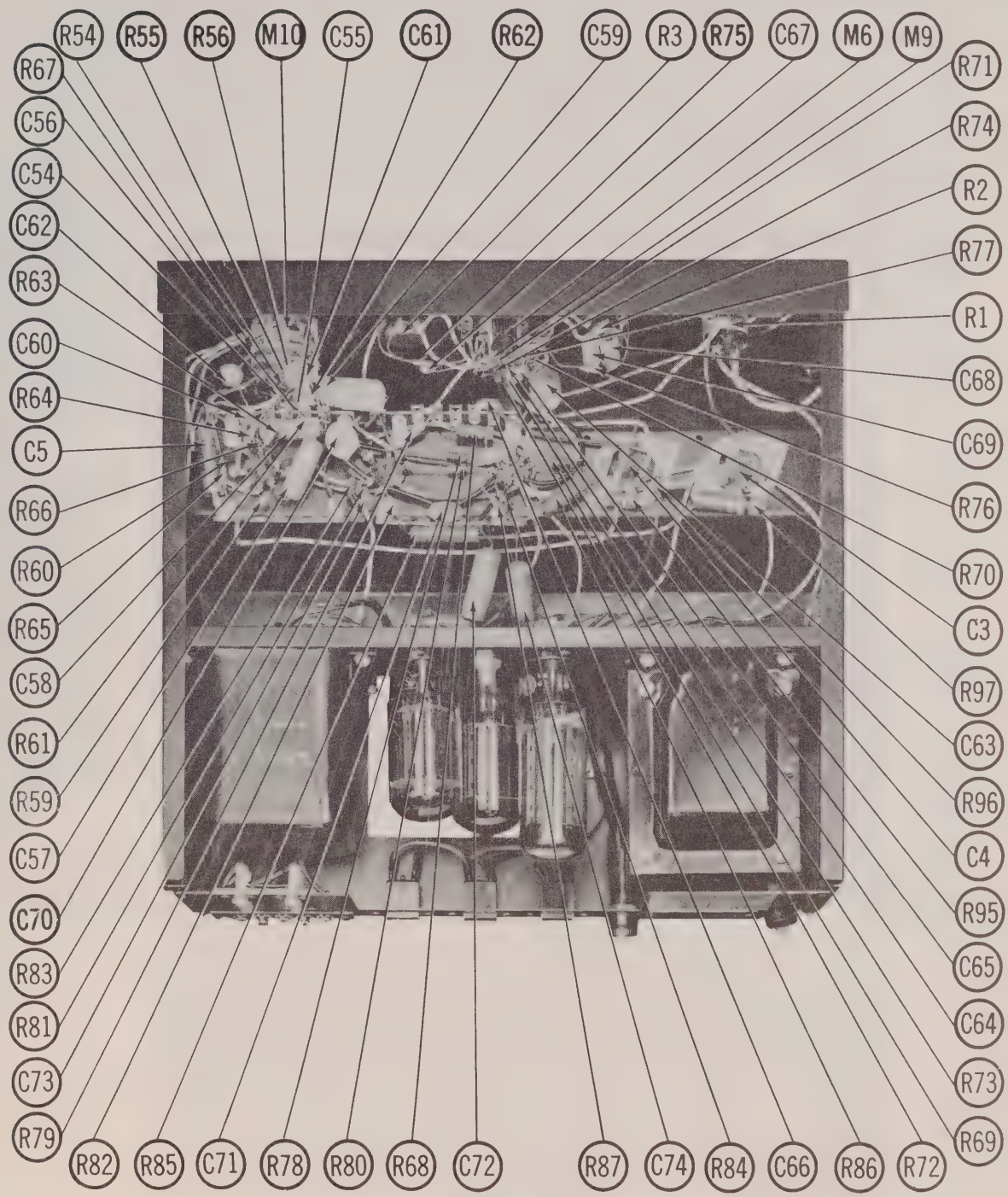
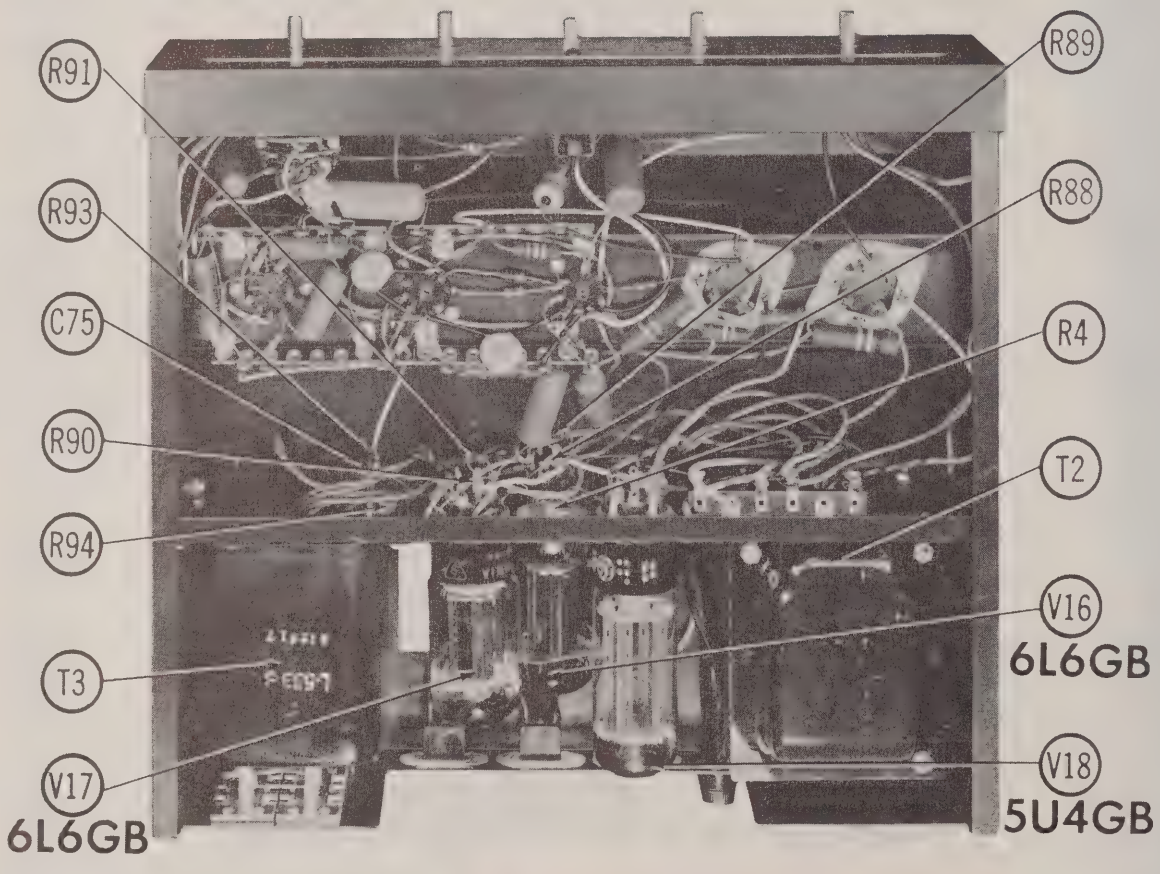
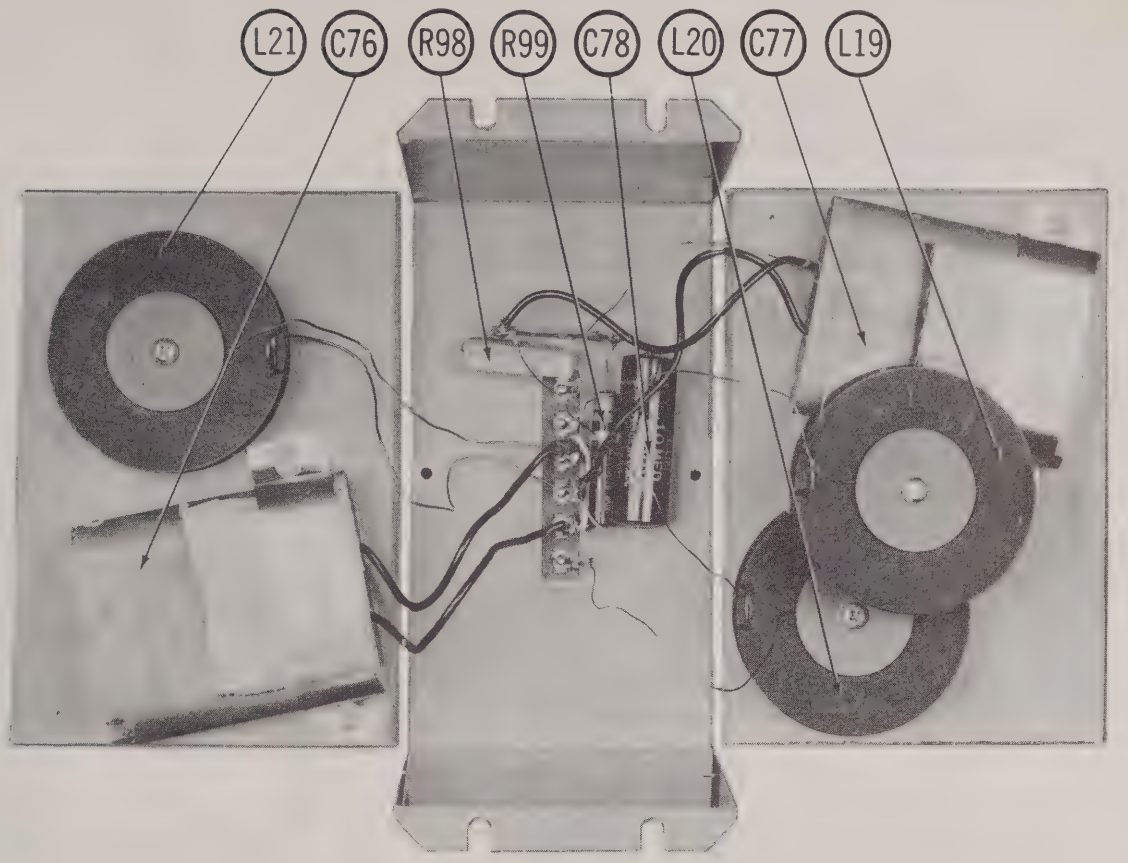


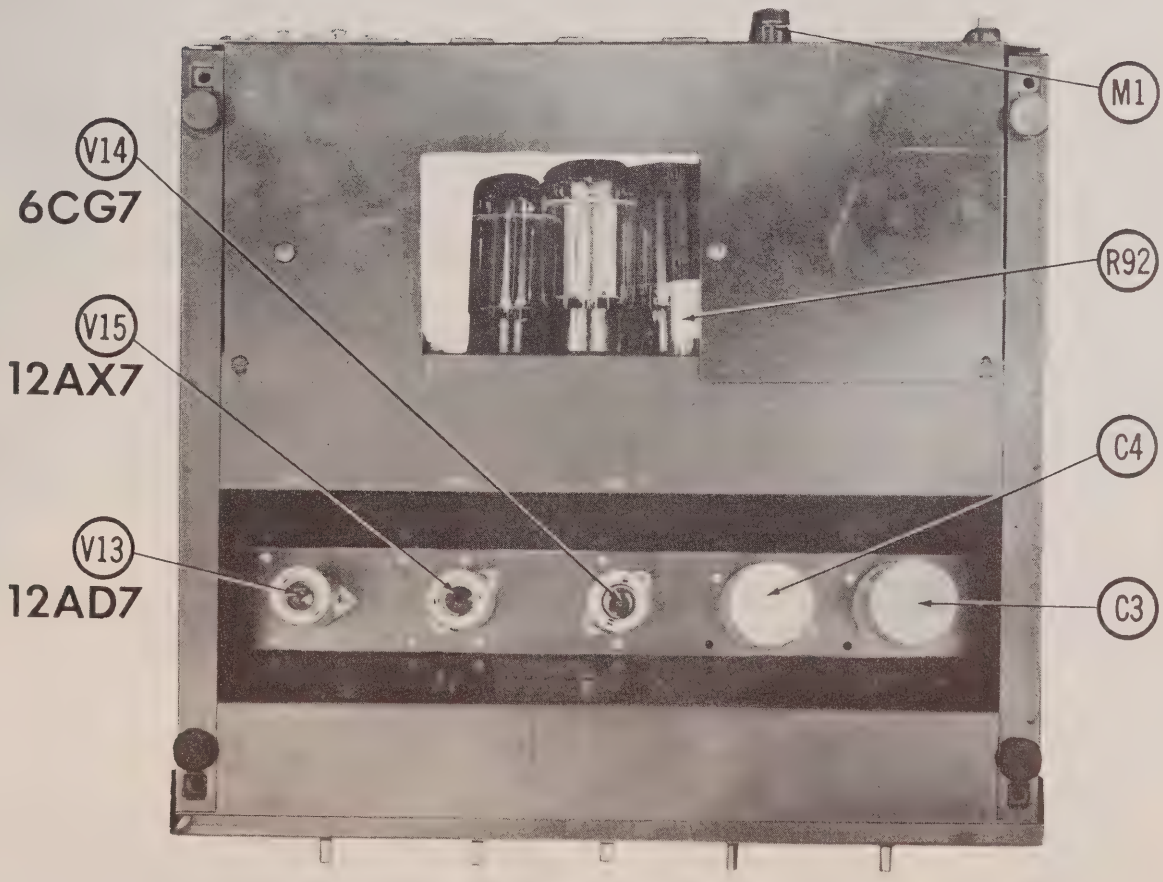
AMP. CHASSIS - BOTTOM VIEW



AMP. CHASSIS - BOTTOM VIEW



SPEAKER CROSSOVER NET.



AMP. CHASSIS - TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6AN4	
V2	FM Mixer	6AB4	
V3	FM Osc. -AFC	12AT7	
V4	AM RF Amplifier	6BA6	
V5	AM Converter	6BE6	
V6	1st IF Amplifier	6BA6	
V7	2nd IF Amplifier	6BA6	
V8	1st Limiter-AM Det-AVC	6AU6	
V9	2nd Limiter	6AU6	

ITEM No.	USE	TYPE	NOTES
V10	Discriminator	6AL5	
V11	AM AF Amp.-Cath.Follower	12AU7	
V12	Rectifier	6X4	
V13	Preamplifier	12AD7	
V14	AF Amp. -Phase Inverter	6CG7	
V15	AF Amplifier	12AX7	
V16	Output	6L6GB	
V17	Output	6L6GB	
V18	Rectifier	5U4GB	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA							
	CAP.	VOLT.	A. M. I. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.	
C1A	▲40	150		AFH2-14	XBO141	FP212	TMD-11	D-060	TVL-2428	
B	■40	150								
C2A	▲40	150		AFH2-14	XBO141	FP212	TMD-11	D-060	TVL-2428	
B	■40	150								
C3A	▲40	475				FP396. 2	TD-20-500		TVL-4832	
B	■20	475				TC45	TMT-157		TVA-1410	
C	▲20	50								
C4A	▲20	475		AFH4-19-10	BO500	FP474. 5	TMD-61		R2371*	
B	■20	475			BBR20-25		TD-20-150			
C	▲20	25	(Note 1)							
C5	50	6		SRE6V50	BBR50-6	TC29	TD-50-6	MMT-650	TVA-1100	

Note 1: C4C is not used in some versions.
* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	A. M. I. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	470		S-222F	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C7	47			BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C8	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C9	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C10	1. 2			NP0-SI 1	TCZ-1		TCO-1			NP0
C11	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C12	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C13	100			N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750
C14	1-10									
C15	1. 2			NP0-SI 1	TCZ-1		TCO-1			NP0
C16	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C17	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C18	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C19	22			N750-SI 22	TCN-22	C10Q22U	TC7-22		5TCU-Q22	N750
C20	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C21	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C22	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C23	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C24	47			BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C25	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C26	. 05	200		BPD-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C27	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C28	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C29	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C30	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C31	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C32	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C33	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C34	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C35	22			BPD-000022	D6-220	L10Q22	ED-22	UC-5422	5GA-Q22	
C36	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C37	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C38	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C39	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C40	47			BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	A. M. I. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C41	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C42	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C43	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C44	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C45	100		S-222L	SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C46	100		S-222L	SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C47	200			SI 200	D6-201	LT6T2	GP-200	UC-532	5GA-T2	
C48	100		S-222L	N750-SI 100	TCN-100	C10T1U	TC7-100	NT-100	5TCU-T1	
C49	. 05	200		BPD-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C50	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C51	. 1	200		P288N-1	DF-104	CUB2P1		GEM-401	2TM-P1	
C52	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C53	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C54	470		S-222F	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C55	1800		S-222G	SI 1800	D6-182	L10D18	ED-1800	UC-5218	5GA-D18	
C56	4700		S-222N	BPD-0047	DD-472	BYA6D47	ED-0047	UC-5247	5GA-D47	
C57	. 022	600	S-210U	BPD-02	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22	
C58	. 0068	600	S-222B	P688N-0068	D6-682	CUB6D68	GP-6800	GEM-6268	6TM-D68	
C59	. 25	200	S-210Z	P288N-25		CUB2P25		GEM-4025	2TM-P25	
C60	560		S-222P	SI 560	D6-561	L10T56	ED-560	UC-5356	5GA-T56	
C61	1800		S-222G	SI 1800	D6-182	L10D18	ED-1800	UC-5218	5GA-D18	
C62	. 022	600	S-210U	BPD-02	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22	
C63	. 1	600	S-210C	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C64	220		S-222H	SI 220	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C65	470		S-222F	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C66	. 03	600	S-210G	BPD-03	DF-303	CUB6S3		GEM-613	6TM-S3	
C67	100		S-222L	BPD-0001	D6-101	L10T1	ED-100	UC-531	5GA-T1	
C68	. 0047	600	S-211A	BPD-0047	DD-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C69	. 0047	600	S-211A	BPD-0047	DD-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C70	20000		S-222C	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C71	20000		S-222C	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C72	. 047	600	S-210V	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C73	220		S-222H	SI 220	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C74	. 047	600	S-210V	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C75	. 0068	600	S-222B	P688N-0068	D6-682	CUB6D68	GP-6800	GEM-6268	6TM-D68	
C76	16. 0	100								
C77	16. 0	100								
C78	1. 0	200	S-211B	P288N-1. 0		ST2W1		GEM-41	2TM-M1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	A. M. I. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	H-1553	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2A	1Meg	½	H-1556	B-69	A47-1Meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1Meg	½	H-1556	B-69	A47-1Meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	100Ω	1	F-2637	WN-101	A43-100		R100L	Hum Balance (Wire wound)
B	Shaft			Not Req.	FKS-1/4		Not Req.	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	A. M. I. PART No.	IRC PART No.	
R5	68Ω			BTS-68	
R6	3.3Meg			BTS-3.3Meg	
R7	2200Ω			BTS-2200	
R8	10K			BTS-10K	
R9	1000Ω			BTS-1000	
R10	2200Ω			BTS-2200	
R11	100Ω			BTS-100	
R12	220K			BTS-220K	
R13	560Ω			BTS-560	
R14	1Meg			BTS-1Meg	
R15	47K			BTS-47K	
R16	1000Ω			BTS-1000	
R17	470Ω			BTS-470	
R18	220K			BTS-220K	
R19	1Meg			BTS-1Meg	
R20	22K			BTS-22K	
R21	100K			BTS-100K	
R22	2200Ω			BTS-2200	
R23	47K			BTS-47K	Note 1
R24	1000Ω			BTS-1000	
R25	150Ω			BTS-150	
R26	100K			BTS-100K	
R27	1000Ω			BTS-1000	
R28	150Ω			BTS-150	
R29	100K			BTS-100K	
R30	470K			BTS-470K	
R31	1Meg			BTS-1Meg	
R32	1Meg			BTS-1Meg	
R33	15K			BTS-15K	
R34	15K			BTS-15K	
R35	100K			BTS-100K	
R36	27K			BTS-27K	
R37	18K			BTS-18K	
R38	4700Ω			BTS-4700	
R39	100K			BTS-100K	
R40	100K			BTS-100K	
R41	68K			BTS-68K	
R42	2.2Meg			BTS-2.2Meg	
R43	10Meg			BTS-10Meg	
R44	82K			BTS-82K	
R45	150K			BTS-150K	
R46	150K			BTS-150K	
R47	47K			BTS-47K	
R48	470K			BTS-470K	
R49	6800Ω			BTS-6800	
R50	100K			BTS-100K	
R51	330Ω			BTS-330	
R52	330Ω			BTS-330	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	A. M. I. PART No.	IRC PART No.	
R53	330Ω	1		BTA-330	
R54	47K			BTS-47K	
R55	39K			BTS-39K	
R56	27K			BTS-27K	
R57	27K			BTS-27K	
R58	220K			BTS-220K	
R59	150K			BTS-150K	
R60	1500Ω			BTS-1500	
R61	150K			BTS-150K	
R62	220K			BTS-220K	
R63	220K			BTS-220K	
R64	150K			BTS-150K	
R65	150K			BTS-150K	
R66	1500Ω			BTS-1500	
R67	2.2Meg			BTS-2.2Meg	
R68	27K	1		BTA-27K	
R69	2200Ω			BTS-2200	
R70	120K			BTS-120K	
R71	56K			BTS-56K	
R72	2.2Meg			BTS-2.2Meg	
R73	33K			BTS-33K	
R74	15K			BTS-15K	
R75	150K			BTS-150K	
R76	150K			BTS-150K	
R77	330K			BTS-330K	
R78	2.2Meg			BTS-2.2Meg	
R79	220K			BTS-220K	
R80	470Ω			BTS-470	
R81	1Meg			BTS-1Meg	
R82	220K			BTS-220K	
R83	680Ω			BTS-680	
R84	1Meg			BTS-1Meg	
R85	22K 5%	2		BTB-22K 5%	
R86	22K 5%	2		BTB-22K 5%	
R87	560Ω 5%			BTS-560 5%	
R88	470K			BTS-470K	
R89	470Ω			BTS-470	
R90	470K			BTS-470K	
R91	470Ω			BTS-470	
R92	300Ω	10		PW10-300	
R93	27K			BTS-27K	
R94	270Ω	2		BTB-270	
R95	120K	1		BTA-120K	
R96	8200Ω	1		BTA-8200	
R97	10K	2		BTB-10K	
R98	7.6Ω	7			
R99	22Ω	2		BTB-22	
R100	470K			BTS- 470K	

Note 1: Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	A. M. I. PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ② .29A	260VCT ② .051A	6.3VAC ② 4A		FT481054			PC-841 ①②		
T2	117VAC ② .91A	700VCT ② .115A	5VAC ② 3A	6.3VAC ② 3.5A	L-1553					

① Fabricate mounting.
② Tape CT on 6.3V filament winding.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	A. M. I. PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	5800Ω tapped	250-500Ω (or 70.7V line) Taps ② 20-40Ω, 12-20Ω, 5-10Ω, & 2-4Ω.	L-533						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	A. M. I. PART No.	QUAM PART No.	
SP1	12"	PM	10Ω	L1592	12A10XZ10	① Horn type high frequency speaker.
SP2	①	PM	16Ω			② Horn type very high frequency speaker.
SP3	②	PM	11Ω	H1576		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		A. M. I. PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil					.1 Microhenry
L2	RF Choke					3.3 Microhenries; IRC part #CLA
L3	FM RF Coil					
L4	FM Osc. Coil					
L5	Fil. Choke		19-1000		4602	1 Microhenry, IRC part #CLA
L6	RF Choke		19-1000		4602	1 Microhenry, IRC part #CLA
L7	FM Mixer Coil					
L8	Loop Stick	GL-481207				
L9	AM RF Coil	GT-811450	14-1411			
L10	AM Osc. Coil	GL-24601	14-1055			
L11	1st FM IF	GT-24606	16-3487	FM-254	1463	
L12	1st AM IF	GT-24609	16-6758	BC-352	12-C1	
L13	2nd FM IF	GT-24606	16-3487	FM-254	1463	
L14	2nd AM IF	GT-24609	16-6758	BC-352	12-C1	
L15	3rd FM IF	GT-24606	16-3487	FM-254	1463	
L16	3rd AM IF	GT-24609	16-6758	BC-353	12-C2	
L17	FM Limiter	GT-24606	16-3487	FM-254	1463	
L18	FM Discriminator	GT-481423	17-3494	FM-253	1464	
L19	Crossover Choke					1.7 Millihenries
L20	Crossover Choke					5 Millihenries
L21	Crossover Choke					4.8 Millihenries

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	A. M. I. PART No.	REPLACEMENT DATA	
K1	AM Det. Filter	47K, 50MMF, 50MMF		Aerovox	PA-99
				Centralab	PC-52
				Cornell-Dubilier	11TM3
				Erie	1403-03
				Sprague	D-3

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			A. M. I. PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	2A 250V			312002. (3AG-2A)	342001	AGC 2	HKP

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	A. M. I. PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M2						

PHONO NEEDLE

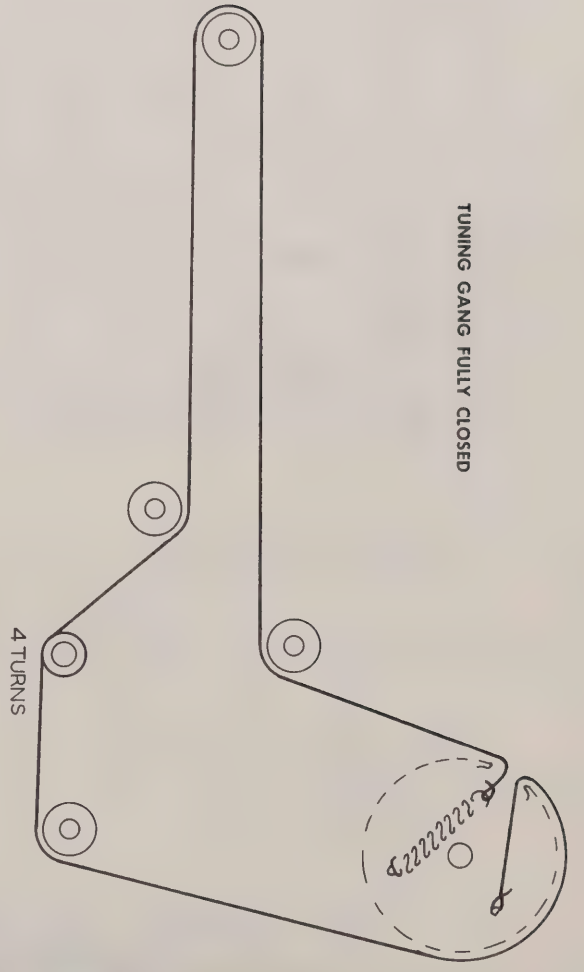
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	A. M. I. PART No.	JENSEN PART No.	WALCO PART No.	
M3		†G-13 or †♦G-13SD or ♦G-13D	†W-68TPS or †♦W-68DS or ♦W-68TPD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	A. M. I. PART No.	NOTES
M4	Dial Light	F-2232	#47
M5	Dial Light	F-2232	#47
M6	Dial Light	F-2232	#47
M7	Tuning Cap.	JV-531175B	6 Gang (AM Sections: 20-535MMF, 20-535MMF, 20-195MMF)
M8A	Switch		Selector (Rotary, Wafer Type)
B	Switch		On-Off (Power) SPST
M9	Switch	F-5600	Loudness (Rotary, Wafer Type)
M10	Switch	H-1584	Function Selector (Rotary, Wafer Type) 4 Gang
M11	Meter		Tuning
	Knob	F-5630	Volume, Bass, Treble, Function Selector (4 Used)
	Knob	F-5631	Loudness
	Back Cover	H-1595	Amp. Chassis
	Top Cover	L-1550	Amp. Chassis
	Escutcheon	H-1559	

DIAL CORD STRINGING



PHOTOFACT* Folder

*TRADE MARK

CORONADO MODELS TV1-9404A, TV1-9406A, TV1-9407A, TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A

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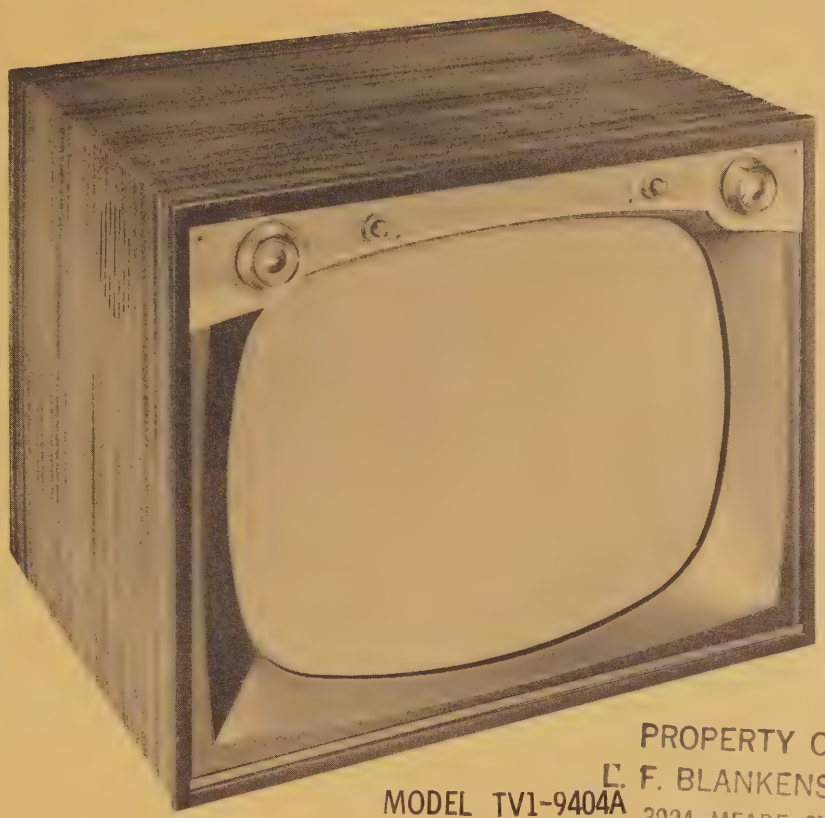

MODEL TV1-9404A

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CORONADO MODELS TV1-9404A, TV1-9406A, TV1-9407A, TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A

TRADE NAME	Coronado MODELS TV1-9404A, TV1-9406A, TV1-9407A, TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A
SUPPLIER	Gambles-Skogmo, Inc., 15 North 8th. St., Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	Fifteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 175 Watts, 1.5 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 46.75, Sound IF 42.25MC (Intercarrier)

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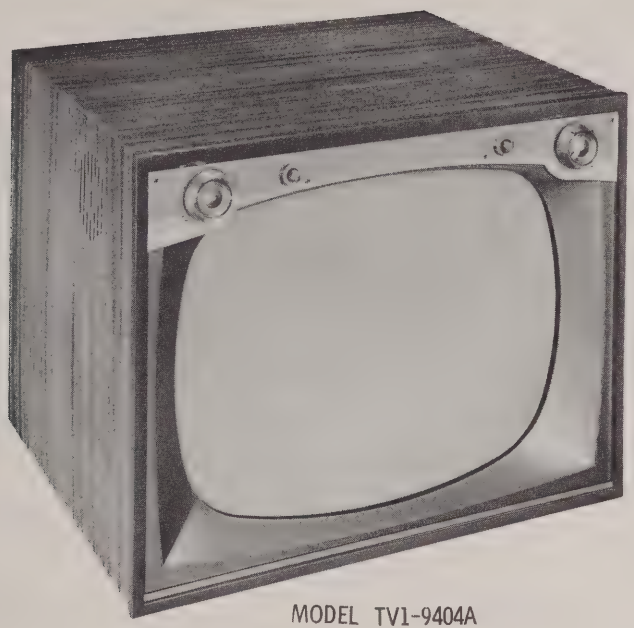
PHOTOFACT* Folder
*TRADE MARK

CORONADO MODELS TV1-9404A, TV1-9406A, TV1-9407A, TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A



MODEL TV1-9404A

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3924 MEADE ST.
DENVER, COLORADO

CORONADO MODELS TV1-9404A, TV1-9406A, TV1-9407A, TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

MODELS

TV1-9404A, TV1-9406A, TV1-9407A, TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

1. Remove 7 push-on type control knobs from the front. NOTE: On power tuning models DO NOT attempt to remove on-off or channel buttons.
2. Remove 4 metal screws and the escutcheon.
3. Remove the metal screws and the safety glass clamps at the top.
4. Remove the safety glass.

FOCUS

The focus may be varied in steps by the position of a wire in the focus adjustment board. This requires a soldered connection. Readjust the Ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate audio detector buzz, adjust the buzz control for MINIMUM buzz and maximum sound. (For location see tube placement chart).

FUSES

A circuit breaker is used for LV power supply protection. (For placement see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

ANTI-PIN CUSHION CORRECTION

Reduce the picture size so that the sides of the raster are visible. Position 2 magnets so that all sides are straight.

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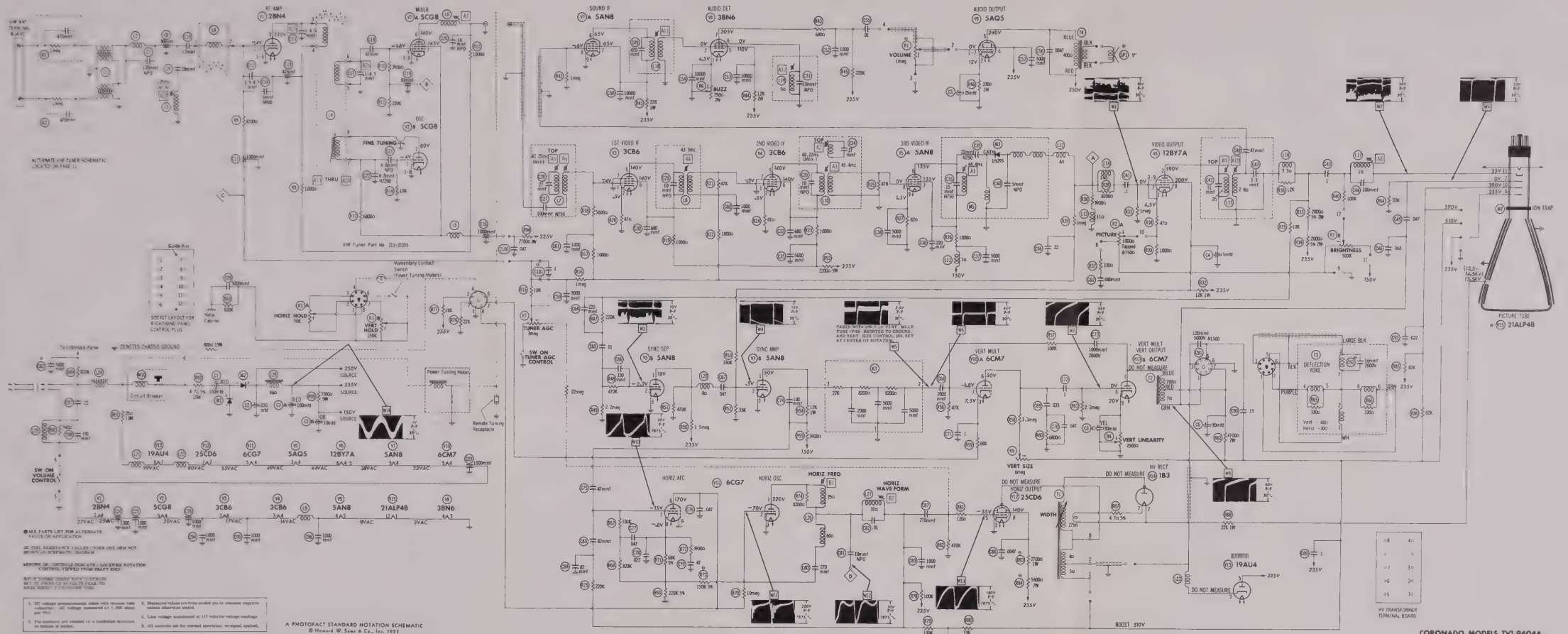

CORONADO MODELS TV1-9404A, TV1-9406A, TV1-9407A, TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A

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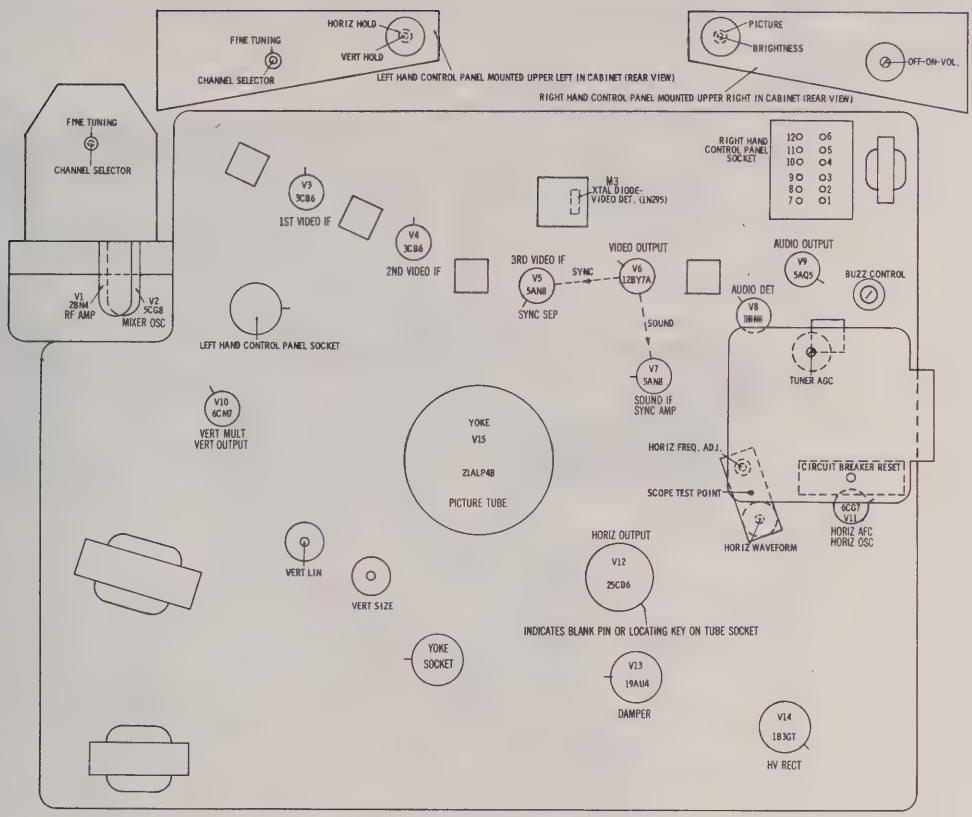
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

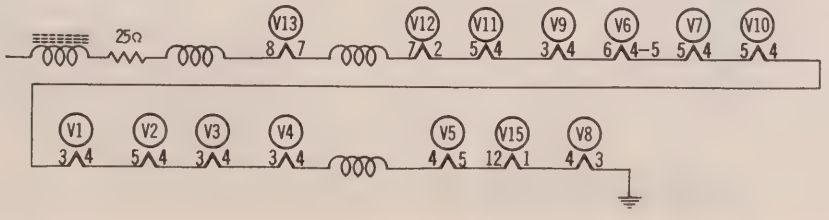
POWER SUPPLY FAILURE
No raster, no sound - Circuit Breaker (M10), Rectifier (M1, M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, V5, Diode (M3), V6
No pic, no sound, has snow - V1, V2
No pic, has sound, has raster - V6, V15
Has pic, no sound - V7, V8, V9

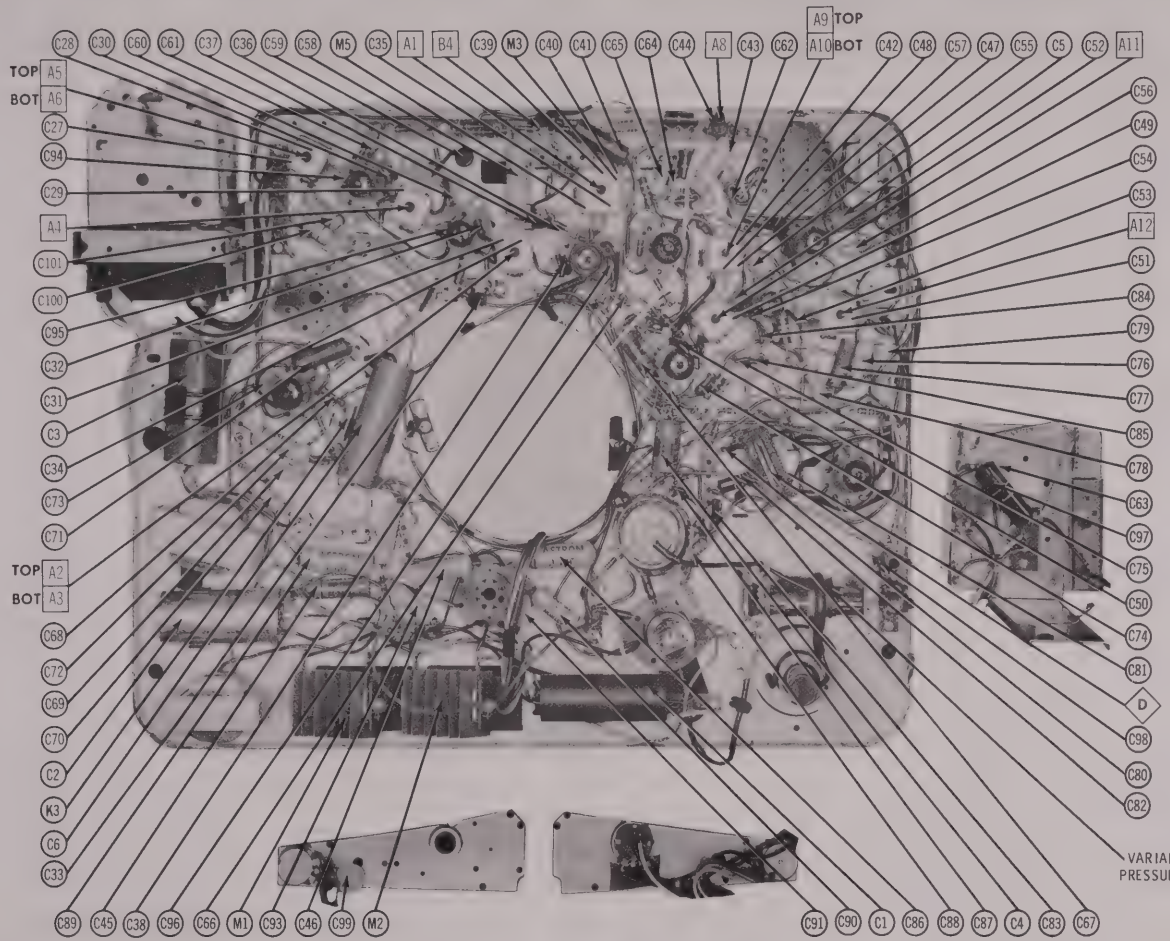
SYNC FAILURE
No vert. sync - V5, V7
No horiz. sync - V5, V7, V11
No vert. or horiz. sync - V5, V7

SWEEP FAILURE
No raster, has sound - V11, V12, V13, V14, V15
No vertical deflection - V10
Poor vert. linearity or foldover - V10
Poor horiz. linearity or foldover - V11, V12, V13
Narrow picture - V11, V12, V13, M1, M2
Vert. off freq. - V10
Horiz. off freq. - V11

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).



CORONADO MODELS TV1-9404A, TV1-9406A, TV1-9407A, TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A



CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The High Voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Connect a 1000MMF capacitor across the scope terminals.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	1000MMF	High side to pin 1 (grid) of 3CB6 (V3). Low side to chassis.	Not used	44.4MC (Unmod)	10	USE VTVM. DC probe to point Ⓐ. Common to chassis.	A1	Attenuate generator output to maintain not more than 2 volts at VTVM. Adjust for maximum deflection.
2.	"	"	"	48.22MC	"	"	A2	Adjust for MINIMUM deflection.
3.	"	"	"	45.4MC	"	"	A3	Attenuate generator output to maintain not more than 2 volts at VTVM. Adjust for maximum deflection. Repeat step 2.
4.	"	"	"	43.3MC	"	"	A4	Attenuate generator output to maintain not more than 2 volts at VTVM. Adjust for maximum deflection.
5.	"	"	44.0MC	43.65MC 46.75MC	"	Vert. Amp. thru 10K to point Ⓐ. Low side to chassis.		Adjust A1 for flat-top response.
6.	"	"	"	"	"	"		Check for response curve similar to Fig. 1 with markers at 40%. If curve is not correct, repeat steps 1 thru 3.
7.	"	High side to point Ⓑ. Low side to chassis.	Not used	42.25MC	"	USE VTVM. DC probe to point Ⓐ Common to chassis.	A5	Use only enough generator output to provide usable indication on VTVM. Adjust for MINIMUM deflection.
8.	"	"	44.0MC	43.65MC 46.75MC	"	Vert. Amp. thru 10K to point Ⓐ. Low side to chassis.	A6, A7	Adjust for response similar to Fig. 2 with markers at 50%.

4.5MC TRAP ALIGNMENT

Tune in a TV station and adjust the fine tuning until sound bars just appear in the picture.
Adjust A8 fully counter clockwise, then clockwise until the horizontal scanning lines are smooth and continuous.

SOUND IF ALIGNMENT

Restore the receiver to normal operation. Tune in a TV station and adjust the fine tuning until sound bars just appear in the picture. Adjust A9 fully counter clockwise. Then clockwise until the horizontal scanning lines are smooth and continuous. Readjust the fine tuning for clearest picture and best sound. Insert an attenuator in series with the antenna and the receiver antenna terminals so that the signal strength may be varied from weak to strong. If a suitable attenuator is not available, stray feed the signal to the receiver by placing the antenna lead-in near the receiving antenna terminals. Reduce the signal input to the receiver so that the signal falls below the limiting level of the 3BN6 (V8) as evidenced by a hiss in the sound. Adjust A10, A11, A12 and the buzz control (R6) for maximum clear sound and MINIMUM buzz. If the hiss disappears during alignment, increase attenuation until the hiss reappears.

OSCILLATOR ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point Ⓒ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the center of its range.
Use only enough sweep generator output to provide usable pattern on scope.
The channel oscillator adjustment slugs are reached thru a hole in the front of the tuner as the channel switch is turned to each channel.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC	13	Vert. Amp. thru 47K to point Ⓐ. Low side to chassis.	A13	Adjust to place video marker at 50% as in Fig. 3.
			207MC (10MC Swp)	205.25MC	12		A14	
			201MC (10MC Swp)	199.25MC	11		A15	
			195MC (10MC Swp)	193.25MC	10		A16	
			189MC (10MC Swp)	187.25MC	9		A17	
			183MC (10MC Swp)	181.25MC	8		A18	
			177MC (10MC Swp)	175.25MC	7		A19	
			85MC (10MC Swp)	83.25MC	6		A20	
			79MC (10MC Swp)	77.25MC	5		A21	
			69MC (10MC Swp)	67.25MC	4		A22	
			63MC (10MC Swp)	61.25MC	3		A23	
			57MC (10MC Swp)	55.25MC	2		A24	

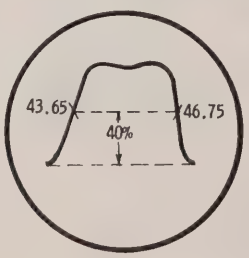


FIG. 1

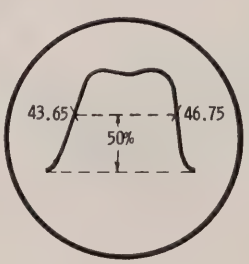


FIG. 2

ALIGNMENT INSTRUCTIONS (cont)

RF AND MIXER ALIGNMENT FOR TUNER #211-27255

Connect bias as under "Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis.	A25,A26	Adjust A25 and A26 for response similar to Fig. 4 with markers on shoulders of curve.
11.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 4. If markers fall below 70% on any channel, make compromise adjustment of A25, and A26 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			
12.	"	"	Not used	105.0MC	2	USE VTVM. DC probe to point Ⓐ. Common to chassis.	A27	Adjust for MINIMUM deflection.

RF AND MIXER ALIGNMENT FOR TUNER #211-27057

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis.	A28, A29, A30	Adjust for response curve similar to Fig. 4 with markers above 90%.
14.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 4. If markers fall below 70%on any channel, make compromise adjustments of A28, A29 and A30 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

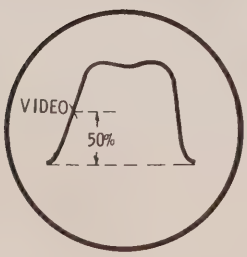


FIG. 3

FIG. 4

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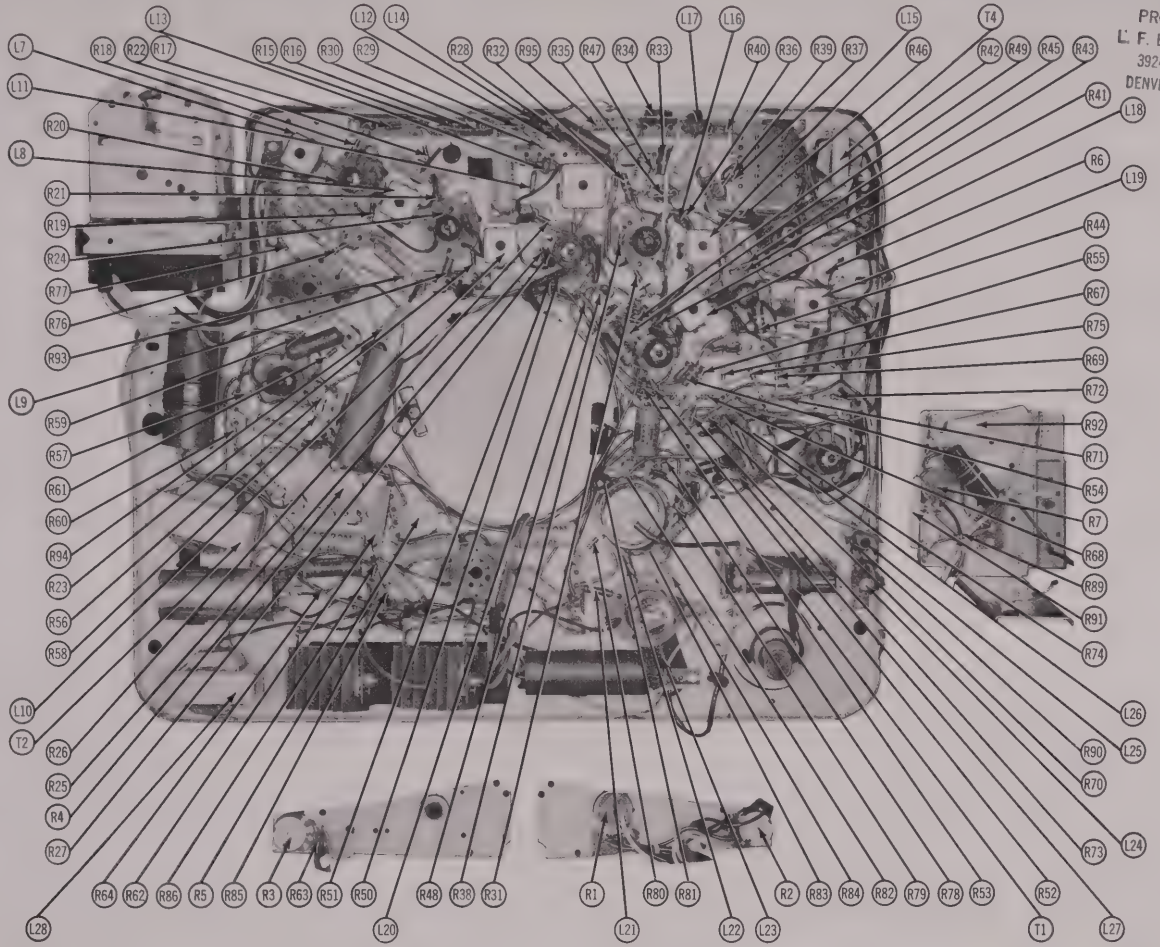


RESISTOR AND INDUCTOR IDENTIFICATION

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2BN4	0Ω	2Meg	9Ω	8Ω	†3700Ω	0Ω	2Meg		
V2	5CG8	10K	†9500Ω	0Ω	6Ω	8Ω	†3700Ω	†2700Ω	0Ω	224K
V3	3CB6	1Meg	47Ω	6Ω	5Ω	†3200Ω	†3200Ω	0Ω		
V4	3CB6	1Meg	47Ω	5Ω	4Ω	†3200Ω	†3200Ω	0Ω		
V5	5AN8	330K	2.6Meg	0Ω	4Ω	2.5Ω	†4300Ω	†4300Ω	.1Ω	82Ω
V6	12BY7A	• 270Ω	1Meg	•270Ω	13Ω	13Ω	14Ω	†4000Ω	†12K	•270Ω
V7	5AN8	†19K	30K	0Ω	11Ω	13Ω	†22K	†22K	1Meg	0Ω
V8	3BN6	•450Ω	.3Ω	0Ω	1Ω	†12K	5Ω	†220K		
V9	5AQ5	•50Ω	330Ω	15.5Ω	14Ω	†400Ω	†46Ω	• 50Ω		
V10	6CM7	‡5400Ω	TP	•170K	9Ω	11Ω	‡• 3.8Meg	47K	2.2Meg	• 1100Ω
V11	6CG7	†100K	340K	0Ω	15.5Ω	17Ω	†• 22K	1.4Meg	280K	0Ω
V12	25CD6GA	TP	17Ω	0Ω	NC	470K	NC	25Ω	†8300Ω	TOP CAP ‡ 5Ω
V13	19AU4	TP	NC	¶	TP	†46Ω	NC	25Ω	30Ω	
V14	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡ 280Ω
V15	21ALP4B	1Ω	33K	PIN 6 †46Ω	PIN 10 ‡50K	PIN 11 •180K	PIN 12 2.5Ω			

NC NO CONNECTION
TP TIE POINT
† MEASURED FROM OUTPUT OF M2.
• THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION.
‡ MEASURED FROM PIN 3 OF V13.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type control knobs from the front. NOTE: On power tuning models, DO NOT attempt to remove the on-off or channel selector buttons. On these models remove the 4 metal screws, the escutcheon, and remove the channel indicator disc and the fine tuning drive.

2. Lay receiver face down on a soft pad .

3. Remove 6 spring clips, 2 metal screws and the rear cover.

4. Remove speaker leads, picture tube socket, HV lead, yoke plug and 2 control plugs.

5. Remove 2 metal screws from the tuner bracket.

6. Remove 1 metal screw holding the top chassis brace.

7. Remove 4 metal screws holding the chassis.

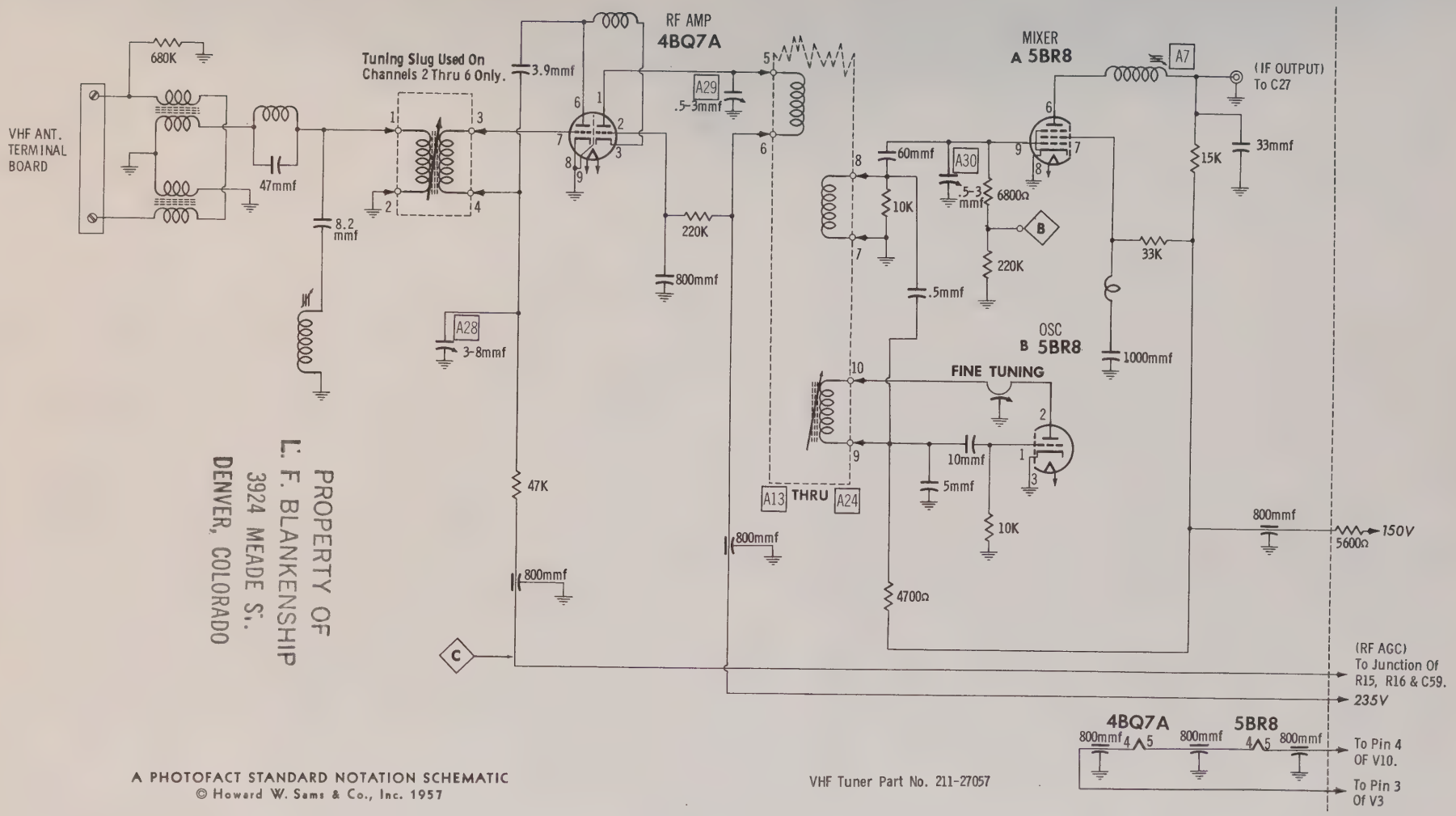
8. Remove the chassis.

9. Set the cabinet upright.

10. Remove 4 metal screws and the escutcheon from the front.

11. Remove the 4 metal screws holding the 2 control panels, and remove the panels.

12. Remove 2 speaker nuts and the speaker.



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VHF Tuner Part No. 211-27057

ALTERNATE VHF TUNER SCHEMATIC

CORONADO MODELS TV1-9404A, TV1-9406A, TV1-9407A, TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	R-F Amplifier	3BN4	
V2	Mixer Oscillator	3AQ8	
V3	1st Video IF Amp	3CB6	
V4	2nd Video IF Amp	3CB6	
V5	3rd Video IF Amp - Sync Separator	3AN8	
V6	Video Output	1BY8A	
V7	Sound IF Amp -Sync Amp	3AN8	

ITEM No.	USE	TYPE	NOTES
V8	Audio Detector	3BN6	
V9	Audio Output	3AQ5	
V10	Vert Mult -Vert Output	6CM7	
V11	Horiz AFC-Horiz Osc	6CG7	
V12	Horiz Output	2KD6	
V13	Damper	1RA4	
V14	HV Rectifier	1B3GT	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	CORONADO PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V15	ELALP4B ELALP4A ELALP4 ELAVP4A	ELALP4B ELALP4A ELALP4 ELAVP4B ELAVP4A	ELALP4B ELALP4A②	ELALP4B ELALP4A ELALP4B ELALP4 ELALP4A	1 Silver Screen '65' 2 Aluminized

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP	VOLT	CORONADO PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	150	150	8C-37137	PRI-100	XA026	TC495	TD-150-150	MT-15150	TVA-1422
C2	150	500	8C-37113	AFBI-37-25		FP331	TMS-42	S-200	TVL-1564
C3A	100	300	8C-47089	PRI-053	BR505	WQ-533		T-537	R2227 *
B	10	300			DQ020			MT-0255	
C	50	50							
C4	30	300	8C-34174-1	PRS350V4	BR435	TC50	TD-S-350	FM-3508	TVA-1305
C5	25	25	8C-37121	PRS25V25	BRR25-25	TC25	TD-25-25	FM-0225	TVA-1205
C6	30	450	8C-47078	PRS450V30	BR3045	TC77	TD-30-450	FM-4530	TVA-1761

* Non-catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C7	180		13LBDB1BK	WPG-81 180	TCZ-120	CUOT1AC	TCO-120		5TCC-T13	NP0
C8	30		13M-330EA300J-05							
C9	28		13R-005							
C10	12		13R-003							
C11	1000		13MB2BEA102Z-04	EF-001		MPT-1000			503C-D1	
C12	1 5-4 5				52B-6		33B-B			
C13	1 0-4 5									
C14	5		31B-902-07		52B-6		33B-B			NP900
C15	5		13EBCH050M							
C16	1000		31T-2124	RF-001		MPT-1000			503C-D1	
C17	1 0-4 5		31R-902-07		52B-6		33B-B			
C18	47		13R-008							
C19	30		13M-330EA300M-06							
C20	18		13LCBC180J		TCZ-18	CUOZ8C	TCO-18			NP0
C21	8 8		13R-006		TCZ-8R8	CUOV8C	TCO-6.8	ZT-5568	5TCCB-V8R	
C22	1000		10BS-27502	EF-001		MPT-1000			503C-D1	
C24	1000		10BS-27502	EF-001		MPT-1000			503C-D1	
C25	1000		10BS-27502	EF-001		MPT-1000			503C-D1	
C26	.0005		10BS-27502	EF-001		MPT-1000			503C-D1	
C27	47			WPG-81100		CUOTU	TCT-100	NT-531	WTCU-T1	N750
C28	47						TCZ-37	ZC-5427		
C29	10			WPG-81 10		TCZ-10	CUOJC	TCC-10	ZT-541	5TCC-Q	NP0
C30	680			SI 680		BYA0JT68	ED-680	CC-5268	SGA-T68	
C31	10			WPG-81 10		TCZ-10	CUOJC	TCC-10	ZT-541	5TCC-Q	NP0
C32	680			SI 680		BYA0JT68	ED-680	CC-5268	SGA-T68	
C33	5000			BPD-005		DD-502	BYA0D5	ED-005	DC525	5HK-D5	
C34	27					TCZ-27		ZC-5427		
C35	15			WT50-81 15		TCN-15	CUOJU	TCT-15	5TCC-Q15	N750
C36	220			BPD-00022		DD-241	LUOT22	ED-220	UC-5522	SGA-T22
C37	5000			BPD-005		DD-502	BYA0D5	ED-005	DC525	5HK-D5
C38	5000			BPD-005		DD-502	BYA0D5	ED-005	DC525	5HK-D5
C39	33			WT50-81 33		TCN-24	CUOQ2U	TCT-33	5TCC-Q33	N750
C40	5			NP0-81 5		TCZ-5	CUOV5C	TCC-5	ZT-555	5TCCB-V47	NP0
C41	1	300		P28BN-1		DF-104	CUB42H		GEM-401	47M-P1	
C42	51			NP0-81 50		TCZ-51	LUOJU	ED-51		SGA-T51	
C43	1	400		P48N-1		DF-104	CUB42H		GEM-401	47M-P1	
C44	100			BPD-001		DD-101	LUOT1	ED-100	UC-531	SGA-T1	
C45	047	600		BPD-05		DF-503	CUB524		GEM-5147	47M-S47	
C46	068	600		P68N-068		DF-504	CUB526		GEM-5168	47M-S68	
C47	3 3			NP0-81 3 3		TCZ-3R3	CUOV3C	TCC-3 3	ZT-5533	5TCCB-V33	
C48	47			BPD-00047		DD-470	LUOJ47	ED-47	UC-5447	5TCC-Q47	
C49	47			BPD-00047		DD-471	BYA0JT47	ED-470	UC-5547	SGA-T47	
C50	10000			BPD-01		DD-103	BYA581	ED-01	DC511	5HK-S1	
C51	10			NP0-81 10		TCZ-10	CUOJC	TCC-10	ZT-541	5TCC-Q	NP0
C52	1000			BPD-001		DD-102	BYA5D1	ED-001	DC521	5HK-D1	
C53	10000			BPD-01		DD-103	BYA581	ED-01	DC511	5HK-S1	
C54	10000			BPD-01		DD-103	BYA581	ED-01	DC511	5HK-S1	
C55	01	400		BPD-01		DD-103	CUB481	ED-01	GEM-411	47M-S1	
C56	0047	600		P6-472*		DF-503	CUB524		GEM-5147	47M-D47	
C57	5000			BPD-005		DD-502	BYA5D5	ED-005	DC525	5HK-D5	
C58	24	200		P28BN-22			CUB42F22		GEM-4022	47M-P22	
C59	5000			BPD-005		DD-502	BYA0D5	ED-005	DC525	5HK-D5	
C60	1000			BPD-001		DD-102	BYA5D1	ED-001	DC521	5HK-D1	
C61	1000			BPD-001		DD-102	BYA5D1	ED-001	DC521	5HK-D1	
C62	680			SI 680		DE-681	BYA0JT68	ED-680	UC-5268	SGA-T68	
C63	5000			BPD-005		DD-502	BYA0D5	ED-005	DC525	5HK-D5	Note 1
C64	140			BPD-00022		DD-221	LUOT22	ED-220	UC-5322	47M-S1	
C65	01	400		BPD-01		DD-103	CUB481	ED-01	GEM-411	47M-S1	
C66	330			SI 330		DE-331	LUOT33	ED-330	UC-5333	SGA-T33	
C67	047	200		BPD-05		DF-503	CUB2E47		GEM-5247	47M-S47	
C68	2000			SI 2000		DE-202	BYA0D2	ED-002	DC522	5HK-D2	
C69	033	600		BPD-05		DF-303	CUB433		GEM-4133	47M-S33	
C70	047	200		BPD-05		DF-503	CUB2E47		GEM-5247	47M-S47	

ITEM No.	RATING		REPLACEMENT DATA				NOTES
	CAP.	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	
C71	.1	300		P38N-1	DF-104	CUB42P1	
C72	.1	400		P48N-1	DF-104	CUB4P1	
C73	1000	3000		BYD-30-1000	DD30-102	HVB3D1K	
C74	100			SI 100	DE-101	LUOT1	ED-100
C75	47			BPD-000047	DD-470	LUOJ47	ED-47
C76	.047	600		BPD-05	DF-503	CUB4647	
C77	.047	300		BPD-05	DF-503	CUB2347	
C78	.033	300		BPD-03	DF-303	CUB2E33	ED-03
C79	.47	300		P38N-47		CUB23P47	
C80	270			BPD-00027	DD-271	LUOT27	ED-270
C81	10			NP0-81 10	TCZ-10	CUOJC	TCC-10
C82	.01	600		BPD-01	DD-103	CUB581	ED-01
C83	1000			BPD-001	DD-102	BYA5D1	ED-001
C84	82			SI 82	DE-820	LUOJ82	ED-82
C85	82			SI 82	DE-820	LUOJ82	ED-82
C86	.1	600		P68N-1	DF-104	CUB6P1	
C87	270			SI 270	DD-271	LUOT27	ED-270
C88	.0047	600		BPD-0047	DE-472	CUB6D47	ED-0047
C89	.1	600		P68N-1	DF-104	CUB6P1	
C90	.15	300		P38N-15		CUB23P15	
C91	130	5000	SG-35335				
C92	56	3000			DD30-560	HVA3DG6	
C93	.022	600		BPD-02	DF-203	CUB582	ED-02
C94	1000			BPD-001	DD-102	BYA5D1	ED-001
C95	1000			BPD-001	DD-102	BYA5D1	ED-001
C96	1000			BPD-001	DD-102	BYA5D1	ED-001
C97	.82	400		P48N-82		CUB42P82	
C98	330			BPD-00033	DD-331	LUOT33	ED-330
C99	5000			BPD-005	DD-502	BYA0D5	ED-005
C100	.047	600		BPD-05	DF-503	CUB4647	
C101	.1	300		P38N-1	DF-104	CUB23P1	

ITEM No.	REPLACEMENT DATA			NOTES
	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C102	ED-001	GEM-301	47M-P1	
C103	ED-01	GEM-401	47M-P1	
C104	ED-01	DC5511	50A-D1	
C105	ED-01	GEM-411	47M-S1	
C106	ED-01	GEM-4147	47M-S47	
C107	ED-01	GEM-3147	47M-S47	
C108	ED-01	GEM-3233	47M-S33	
C109	ED-01	GEM-3047	47M-P47	
C110	ED-270	UC-5327	SGA-T27	
C111	ED-10	UC-5210	2T-561	NP0
C112	ED-01	GEM-511	47M-S5	
C113	ED-01	DC531	5HK-S3	
C114	ED-01	GEM-601	47M-P1	
C115	ED-270	UC-5327	SGA-T27	
C116	ED-0047	GEM-6147	47M-D47	
C117	ED-01	GEM-801	47M-P1	
C118	ED-01	GEM-3015	47M-P15	
C119	ED-30-560	HVA3DG6	20GA-Q56	N1500 Note 2
C120	ED-02	GEM-4122	47M-S22	
C121	ED-01	DC521	5HK-D1	
C122	ED-01	DC521	5HK-D1	
C123	ED-01	DC521	5HK-D1	
C124	ED-01	GEM-4033	47M-P33	
C125	ED-01	UC-5333	47M-T33	
C126	ED-005	DC525	5HK-D5	
C127	ED-01	GEM-4147	47M-S47	
C128	ED-01	GEM-301	47M-P1	Note 3

Note 1. Some versions may use a .1MFD @ 300V in this application.
Note 2. Some versions use a 68MMF @ 2000V in this application.
Note 3. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	1	10A-36828	B-80	A47-1Meg-Z	Q31-217	U53	Volume - Note 1
B	Shaft			Not Req.	X381-3	Not Req.	Not Req.	
C	Switch			X3H-1	BWE-13	76-1	US-25	
R2A	1000Ω		10B-36828		R1Y-505		U280	Picture - tap @ 750Ω
B	500K				Not Req.		Not Req.	Brightness
R3A	500K		10B-36826	F1-39	R1Y-504		U8-479	Horiz. Hold
B	150K			R2-33	Not Req.		Not Req.	Vert. Hold
R4A	3500Ω		10B-37707	AB-7	A47-3500-A	B11-121	U7	Vert. Linearity
B	3Meg			AE-1	F3Z-1/4	73Z1-K11	Not Req.	
R5A	63Meg		10B-37708	AB-59		Q31-142		Vert. Size
B	Shaft			AE-1		Not Req.		
R6	750Ω	2	10D-23807-1		X9-500		F1L-750	Brass - wire wound
R7A	3Meg	1	10A-35867	B-84	A47-3Meg-S	Q31-140	U59	Tuner AGC
B	Shaft			Not Req.	X3H-3	Not Req.	Not Req.	
C	Switch			X3H-1	BWE-13	76-1	U8-25	

Note 1. Used in Models TV1-9404A, TV1-9406A, TV1-9407A. Alternate part #10B-36417 with no switch attached used in Models TV1-9408A, TV1-9409A, TV1-9410A, TV1-9411A.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CORONADO PART No.	IRC PART No.	
R8	4700Ω			BTS-4700	
R9	1000Ω			BTS-1000	
R10	3900Ω			BTS-3900	
R11	220K			BTS-220K	
R12	6800Ω			BTS-6800	
R13	1000Ω			BTS-1000	
R14	10K			BTS-10K	
R15	47K				
R16	1Meg				
R17	1000Ω				
R18	5600Ω				
R19	1000Ω			BTS-1000	
R20	47Ω			BTS-47	
R21	47K			BTS-47K	
R22	1600Ω				
R23	1000Ω			BTS-1000	
R24	47Ω			BTS-47	
R25	47K			BTS-47K	
R26	1000Ω			BTS-1000	
R27	82Ω			BTS-82	
R28	8200Ω				
R29	1000Ω				
R30	3900Ω			BTS-3900	
R31	1Meg			BTS-1Meg	
R33	12K	1		BTA-12K	
R33	20000Ω 5%	2			
R34	20000Ω 5%	2			
R35	10K			BTS-10K	
R36	12K			BTS-12K	
R37	3300Ω			BTS-330	
R38	47Ω			BTS-47	
R39	1000Ω			BTS-1000	
R40	100K			BTS-100K	
R41	22K	1		BTA-22K	
R42	1Meg			BTS-1Meg	
R43	680Ω			BTS-680	
R44	12K	2		BTB-14K	
R45	220K			BTS-220K	
R46	330Ω	1		BTA-330	
R47	220K			BTS-220K	
R48	470K			BTS-470K	
R49	2.2Meg			BTS-2.2Meg	
R50	1.5Meg			BTS-1.5Meg	
R51	470K			BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CORONADO PART No.	IRC PART No.	
R52	33K			BTS-33K	
R53	330K			BTS-330K	
R54	12K	1		BTA-12K	
R55	3900Ω			BTS-3900	
R56	47K			BTS-47K	
R57	100K			BTS-100K	
R58	3.3Meg			BTS-3.3Meg	
R59	68K			BTS-68K	
R60	6800Ω			BTS-6800	
R61	2.2Meg			BTS-2.2Meg	
R62	4700Ω	7			
R63	330K			BTS-330K	
R64	33K			BTS-33K	
R65	330Ω				
R66	330Ω				
R67	330K				
R68	68K				
R69	220K 5%				
R70	10Meg				
R71	68K 5%				
R72	3900Ω				
R73	100K 5%				
R74	8200Ω				
R75	330K				
R76	22K			BTS-22K	
R77	15K			BTS-15K	
R78	100K			BTS-100K	
R79	100K	1		BTA-100K	
R80	33K			BTS-33K	
R81	180Ω			BTS-180	
R82	470K			BTS-470K	
R83	2700Ω	1		BTB-2700	Note 3
R84	6800Ω	7			
R85	82K			BTS-82K	
R86	82K			BTS-82K	
R87	4.7Ω 5%			BW1-4.7 5%	
R88	22K	1		BW1-22K	
R89	680K			BTS-680K	
R90	560Ω			BTS-560	
R91	25Ω	10	9C14-1117	PW10-25	
R92	4.7Ω 5%	15	9C15-1193		
R93	2200Ω	5			
R94	2700Ω	3	9C11-1104	PW7-2700	
R95	3300Ω	5	9C13-1108		

Note 1. A 130K may be used in some versions.
Note 2. A single 5200Ω, 5W may be used instead of a 2700Ω, 1W and a 5600Ω, 7W.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA						
		CORONADO PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	Horiz. Output Trans.	13E-27097	FB481 *1			A-8290		FLY-99 *	D-53 *1-*
T2	Vert. Output Trans.	13E-37156	21B04 ②	A-3037 ②	2227T ②	V313 ②	VO-101	26852 ②	A-102X ②
T3A	Yoke(90°)Horiz. (18.5MH)	30I-37130 ③	DF607 ③	MDF-92 ③	235D1 ③	YP09F19/43 ③T	DY-16A ③T	Y-16 ③T	Y-41 & (NW1)
B	Vert.(28MH)	10M-23770 ④ 40M-27154 ⑤	T	T		T			YC1 ⑤ CL1 ⑤

① Use original variable gap pressure spring.
Drill new mounting hole(s).
Includes rear cover and centering device.
Rear cover and centering device.
② Yoke clamp.
Use original yoke damping network.
③ Use original rear cover and centering device.
* This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	REPLACEMENT DATA						
	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
8	8				8	8	8
2	2				2	2	3
1	1				1	1	2

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI	SEC	CORONADO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	7700Ω	3-4Ω	13C-32704-2	22115 ①	A-2931 ①	A-8134 ①	24853 ①	S-8X	① Drill use new mounting hole

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CORONADO PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	18A-26935-1 ①	5A07	① Used in Model TV1-9404A
	5 1/4"	PM		18A-27239 ②		② Used in Models TV1-9410A, TV1-9411A (3 Used)
	6"	PM	3-4Ω	18A-25957-3 ③	6A1	③ Used in Models TV1-9408A, TV1-9407A
	8"	PM		18A-27438 ④		④ Used in Models TV1-9408A, TV1-9409A

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA	
		CORONADO PART No.	NOTES
L1	Ant. Trans.	10BS-27167	
L2	Parallel Trap	10BS-27513	
L3	Series Trap	10BS-27513	
L4A	Ant. RF, Mixer Grid, Osc. Coils	10BS-27164-2	Channel 2
B	Ant. RF, Mixer Grid, Osc. Coils	10BS-27164-3	Channel 3
C	Ant., RF, Mixer Grid, Osc. Coils	10BS-27164-4	Channel 4
D	Ant., RF, Mixer Grid, Osc. Coils	10BS-27164-5	Channel 5
E	Ant., RF, Mixer Grid, Osc. Coils	10BS-27164-6	Channel 6
F	Ant., RF, Mixer Grid, Osc. Coils	10BS-27164-7	Channel 7

ITEM No.	USE	REPLACEMENT DATA				NOTES
		CORONADO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L7	1st. Video IF	13A-26986				Includes 43.25MC Trap
L8	2nd. Video IF	13A-26994				
L9	Trap	13A-26995	19-1001		6804	1.4 Microhenries
L10	3rd. Video IF	13A-26996				Includes 46.25MC Trap
L11	Resonant Choke	13A-26997				9 Microhenries, 3MC
L12	Response Choke	13A-26998				18 Microhenries - 85MC
L13	Shunt Peaking Coil	16A-27203	19-3280	TV-105	6181	360 Microhenries
L14	Series Peaking Coil	16A-27467			6185	840 Microhenries
L15A	4.5MC Trap	13M-26979				
B	1st. Sound IF					
L16	Series Peaking Coil	16A-27466	19-3078		6173	90 Microhenries
L17	4.5MC Trap	16A-26991		TV-151		
L18	2nd. Sound IF	30I-26973-1				
L19	Quadrature Coil	13M-26988		TV-134		
L20	Resonant Choke	13A-26987				8 Microhenries, 3MC
L21	RF Choke	16A-26520	19-1004		6810	6 Microhenries
L22	RF Choke	16A-26520	19-1004		6810	6 Microhenries
L23	RF Choke	16A-26520	19-1004		6810	6 Microhenries
L24	Line Choke	13M-27404				47 Microhenries
L25	Line Choke	13M-27405				4 Microhenries

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	CORONADO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L26	88Ω		13E-26939							Tapped @ 80Ω Horiz. Freq.
L27	37Ω		13M-26992							Horiz. Waveform

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	CORONADO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L28	.300A	46Ω	1.5 HY	16B-25146-3	C5037 ①	C-2996 ①	C-2326 ①	26C44	C-17X ①

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CORONADO PART No.	REPLACEMENT DATA
K1	Ant. Input	470MMF, 1Meg		
K2	Ant. Input	470MMF, 1Meg		
K3	Vert. Integrator	2000MMF, 5000MMF, 5000MMF, 22K, 8200Ω, 8200Ω	17A-27087	Aerovox PA-110 Centralab PC-100 Cornell-Dubilier 115TM1 Erie 1405-01 Sprague V-1

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT (Measured)	CORONADO PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	
M1	.335A	2IJ25315 ①	1241A ①	1N1007 ②	MR350 ①	6S450 ①	350A ①	
M2	.335A	2IJ25315 ①	1241A ①	1N1007 ②	MR350 ①	6S450 ①	350A ①	

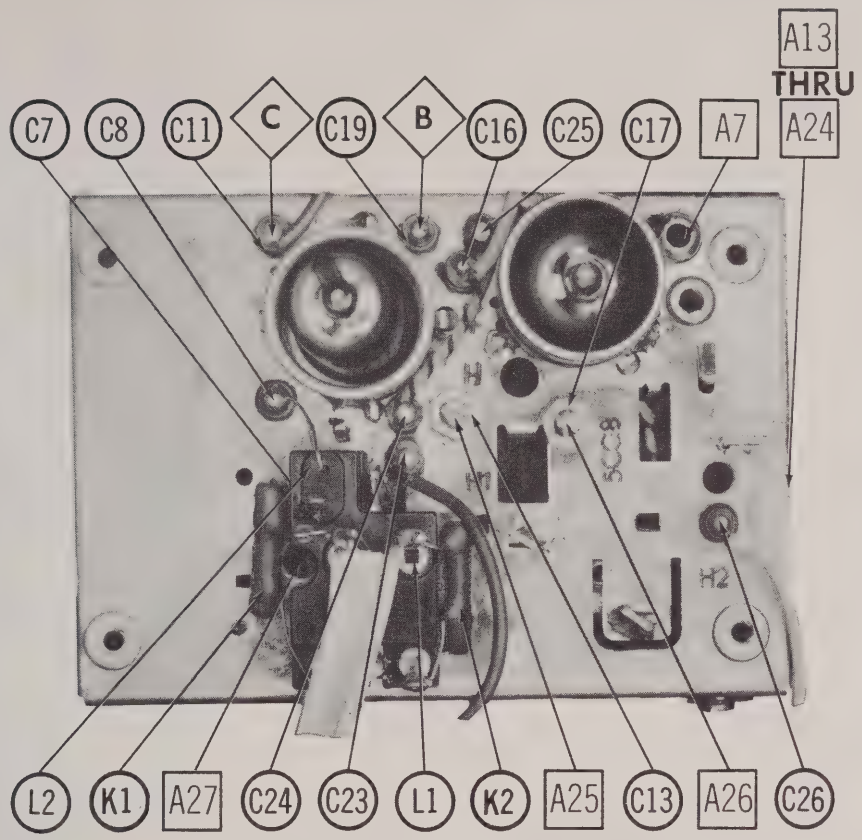
① Selenium Type. ② Germanium type.

CRYSTAL DIODES

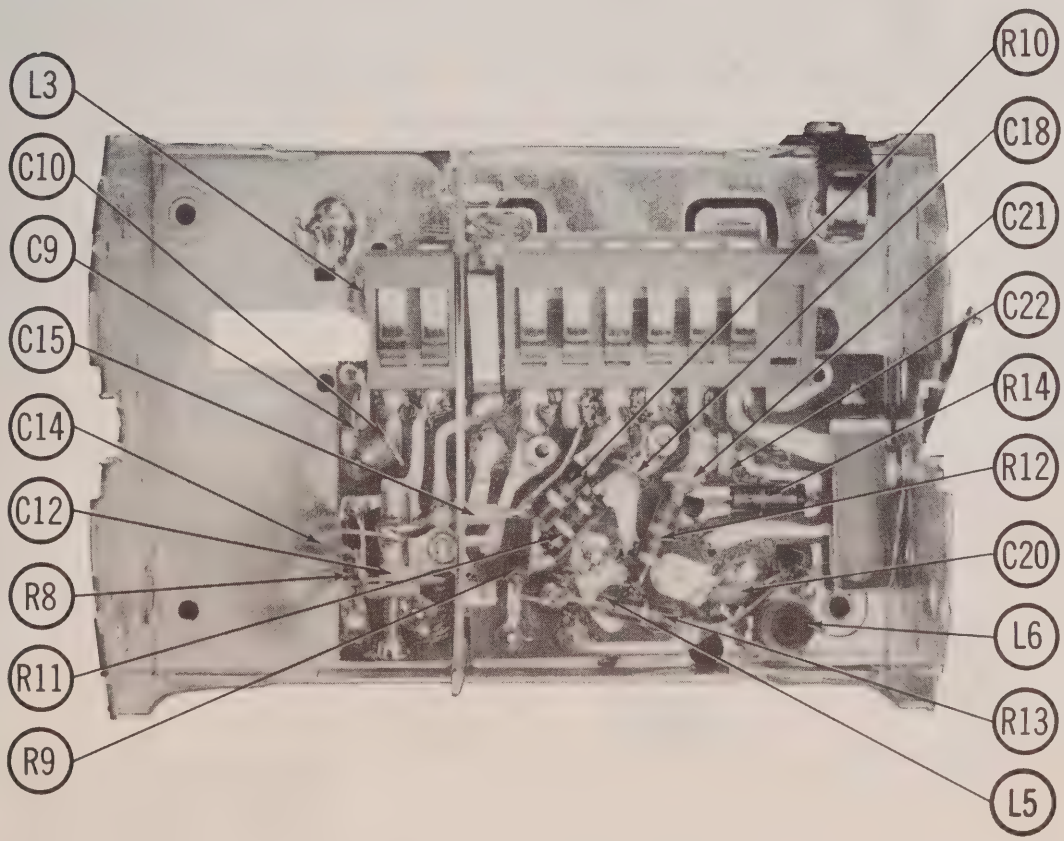
ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		CORONADO PART No.	SYLVANIA PART No.	
M3	1N295		1N60	Video Detector (Pigtail)

MISCELLANEOUS

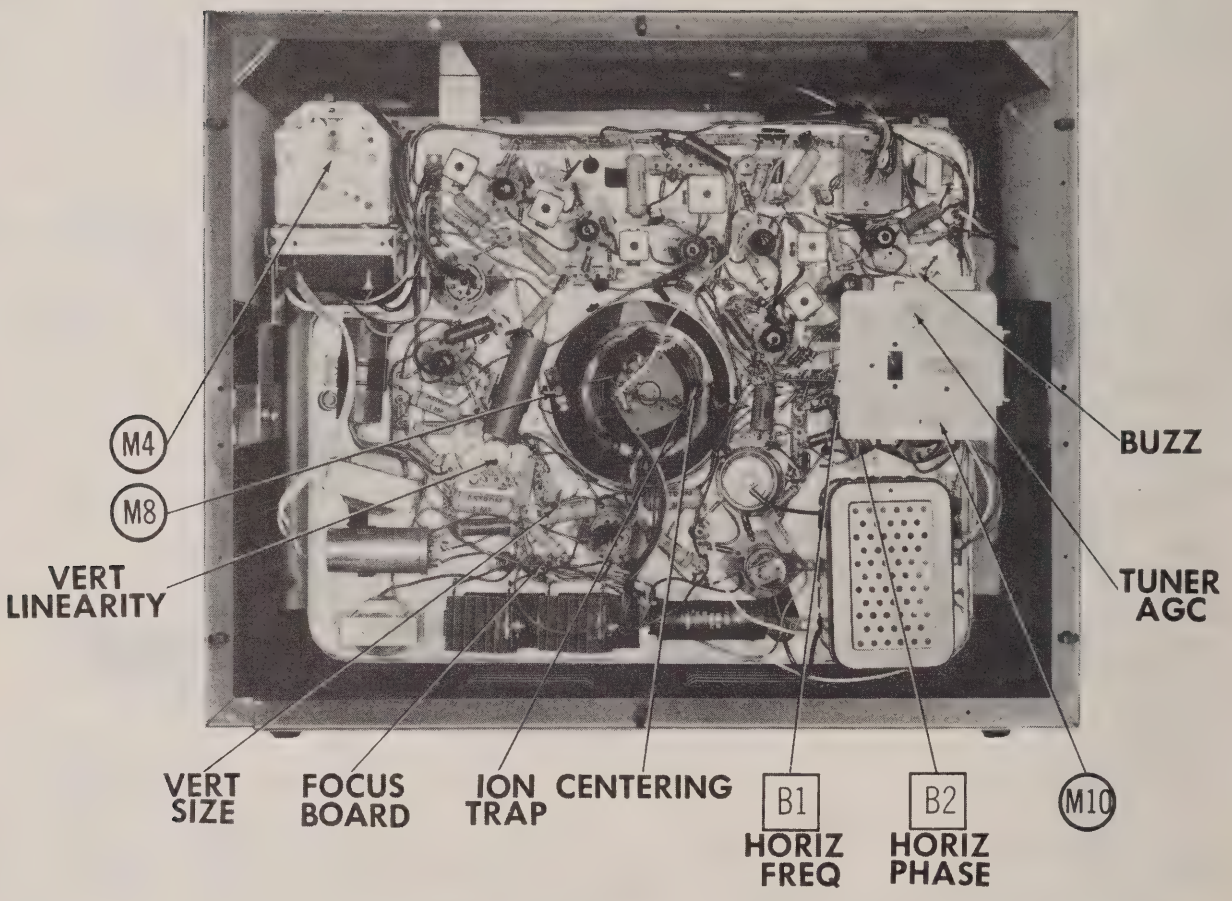
ITEM No.	PART NAME	CORONADO PART No.	NOTES
M4	Tuner	211-27255	VHF Neutrode, Used in Models TV1-9404A, 9406A, 9407A
	Tuner	211-27057	VHF Cascode, Used in Models TV1-9408A, 9409A, 9410A, 9411A
M5	Video Det. Assy.	13B-27003	Includes 4th. Video IF, Caps., RF Choke & Coils
M6	Centering Device	16M-23770	
M7	Ion Trap	16M-19705	
M8	Magnet	201-26614	Anti-pin cushion (2 used)
M9	Yoke Clamp	49M-27154	
M10	Circuit Breaker	20F-27084	
	Motor	21M-26633	Power Tuning
	Power Tuning Assy.	200-26687	Includes motor
	Safety Glass	30M-26963	Models TV1-9404A, 9406A, 9407A
	Safety Glass	30M-27116	Models TV1-9408A, 9409A, 9410A, 9411A
	Mask	5M-26790-A193	Models TV1-9408A, 9409A, 9410A, 9411A
	Button	5A-26854-A195	On-off, Models TV1-9408A, 9409A, 9410A, 9411A
	Button	5A-26855-A195	Channel Selector, Models TV1-9408A, 9409A, 9410A, 9411A
	Knob	5B-26800-A29	On-off volume, Models TV1-9404A, 9406A, 9407A
	Knob	5B-26392-A29	Fine tuning, Models TV1-9404A, 9406A, 9407A
	Knob	5B-27546-A195	Fine tuning, Models TV1-9408A, 9409A, 9410A, 9411A
	Knob	5B-27542-A195	Contrast
	Knob	5B-26395-A195	Channel Selector, Models TV1-9404A, 9406A, 9407A
	Knob	5B-27545-A195	Brightness
	Knob	5B-27543-A195	Horiz. Hold
	Knob	5B-27544-A195	Vert. Hold
	Cabinet	24D-27013	Model TV1-9411A
	Cabinet	24D-26968	Model TV1-9410A
	Cabinet	200-27478	Model TV1-9406A
	Cabinet	200-27479	Model TV1-9407A
	Cabinet	24D-26971	Model TV1-9408A
	Cabinet	24D-27018	Model TV1-9409A



RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Turn the horizontal hold control (R3A) to the center of its range.

Connect a short clip lead across L27. Adjust the horizontal frequency coil slug (B1) until the picture synchronizes horizontally. Remove the clip lead from L27. Connect the vertical amplifier of the oscilloscope to point ⓓ. Low side to chassis. Adjust the horizontal waveform slug (B2) until a waveform similar to Fig. 5 is obtained with round and sharp peaks of equal amplitudes. While making this adjustment, keep the picture in sync with the horizontal hold control. Remove the scope connection and check the range of the horizontal hold control. The picture should fall out of sync at both extreme settings of the horizontal hold control.

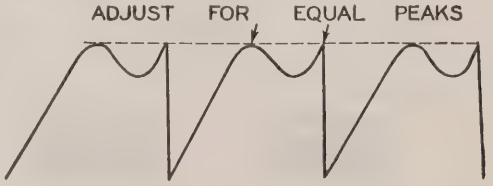


FIG. 5

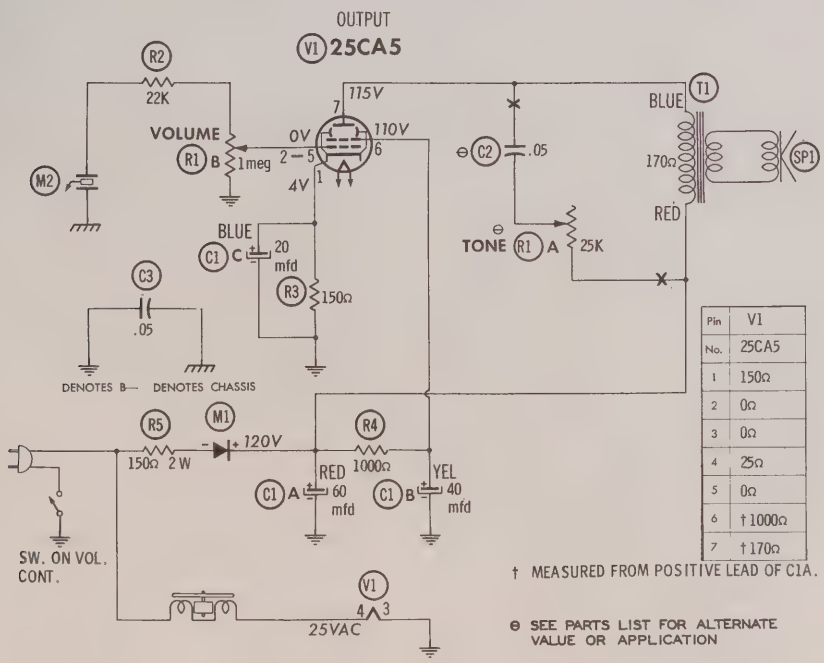
FIRESTONE
MODEL 4-A-130 (Code 364-5-410)

FIRESTONE
MODEL 4-A-130 (Code 364-5-410)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

FIRESTONE
MODEL 4-A-130 (Code 364-5-410)

TRADE NAME	Firestone Model 4-A-130 (Code 364-5-410)
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio
TYPE SET	AC Operated Phono Amplifier With 3 Speed Manual Record Player
TUBES (One)	Type 25CA5 Output
POWER SUPPLY	110-120 Volts AC-50 Cycles RATING .33 Amp. @ 117 Volts AC



Pin No.	V1 25CA5
1	150Ω
2	0Ω
3	0Ω
4	25Ω
5	0Ω
6	†1000Ω
7	†170Ω

† MEASURED FROM POSITIVE LEAD OF C1A.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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361-5

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	25CA5	

ITEM No.	USE	TYPE	NOTES

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	FIRESTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150		PRS150/25V	BBRT8415C	TCT3117	TDL-552	FMT-333	R2199 *
B	40	150		8040/20					
C	20	25							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.05	400		BPD-05	DF-503	CUB4S5		PT415	4TM-S5	Note 1
C3	.05	200	803	BPD-05	DF-503	CUB2S5		PT415	2TM-S5	

Note 1. C2 is omitted when R1A is not used.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FIRESTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	25K		417A	F1-27		*QJ-1007R	UF253L	Tone(Panel) Note 1
B	1Meg			R2-52			UR16A	Volume (Rear) Note 2
C	Switch			KB-1			US-26	

Note 1. R1A is not used in some versions.
Note 2. Some versions may use an alternate control part #417 in this application.
* Concentrikit Equivalent: K-6 Kit, Base Elements & Shafts: B11-120 & P14-019 (Panel)
B13-137 & R1-028 (Rear)
76-1 (Switch)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	FIRESTONE PART No.	IRC PART No.	
R2	22K		517	BTS-22K	
R3	150Ω		505	BTS-150	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	FIRESTONE PART No.	IRC PART No.	
R4	1000Ω		539	BTS-1000	
R5	150Ω	2	633		Note 1

Note 1. Fuse type resistor.

TRANSFORMER (AUDIO OUTPUT)

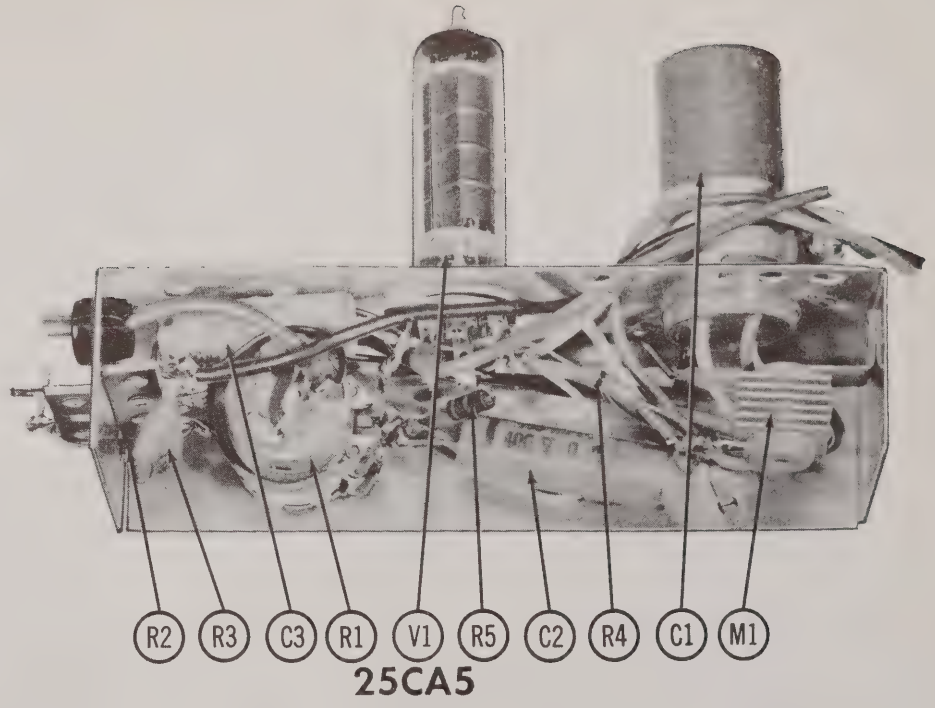
ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	FIRESTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	4000Ω	3-4Ω	Part of Spkr. 2631	Z1000	A-3026	A-3856 ①	22S45	S-6X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	FIRESTONE PART No.	QUAM PART No.	
SP1	4" x 6"	PM	3-4Ω	2631	46A07 ①	① Use universal mounting bracket.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	FIRESTONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.031A	2743	1263A	RS065Q	6S65	8J1	65	



25CA5

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	FIRESTONE PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M2	2573	106	N-6-2	52-2	PFT-1	* Complete tone arm and cartridge ass'y.
		* W-106		*2460		
	2573A	106	N-6-2	52-2	PFT-1	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	FIRESTONE PART No.	JENSEN PART No.	WALCO PART No.	
M3	2549A	*W-122	*W-40AGA	* Metal † Jewel ♦ Diamond
	2549B	†J-252 or †J-152 or ♦J-252D		

MISCELLANEOUS

ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
	Cabinet	2065	
	Knob	2429A	Tone
	Knob	2429	On-off-volume

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3924 MEADE ST.
DENVER, COL

HAMILTON
MODEL PMX-6

HAMILTON
MODEL PMX-6

TRADE NAME	Hamilton Model PMX-6
MANUFACTURER	Hamilton Electronics Corp., 2726 W. Pratt Ave., Chicago 45, Ill.
TYPE SET	AC Operated 6 Channel Preamplifier Mixer
TUBES (Three)	Types 12AX7 Channels 1-2 Preamplifier, 12AX7 Channels 3-4 Preamplifier, 12AX7 Channels 5-6 Preamplifier
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING .04 Amp. @ 117 Volts AC (5 Watts)

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Channel 1-2 Preamp.	12AX7	
V2	Channel 3-4 Preamp.	12AX7	

ITEM No.	USE	TYPE	NOTES
V3	Channel 5-6 Preamp.	12AX7	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	HAMILTON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	150	(Note 1)	AFH3-09	CO080	FP311.4	TMT-8	T-040	TVL-3438
B	■30	150							
C	20	150							

Note 1: Some versions may use 20-20-20MFD unit in this application.

FIXED CAPACITORS

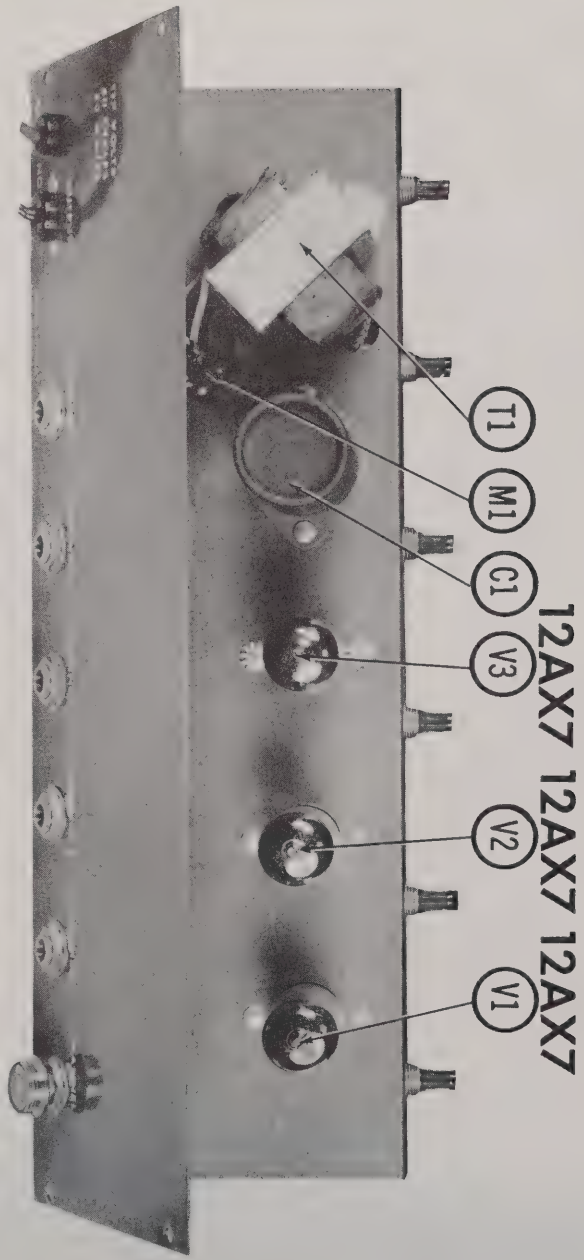
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	HAMILTON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C3	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C4	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C5	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C7	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	HAMILTON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½		B-60	A47-500K-Z	Q13-133	U48	Channel 1 Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	500K	½		B-60	A47-500K-Z	Q13-133	U48	Channel 2 Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	½		B-60	A47-500K-Z	Q13-133	U48	Channel 3 Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4A	500K	½		B-60	A47-500K-Z	Q13-133	U48	Channel 4 Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R5A	500K	½		B-60	A47-500K-Z	Q13-133	U48	Channel 5 Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R6A	500K	½		B-60	A47-500K-Z	Q13-133	U48	Channel 6 Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	HAMILTON PART No.	IRC PART No.	
R7	470K			BTS-470K	
R8	100K			BTS-100K	
R9	150K			BTS-150K	
R10	470K			BTS-470K	
R11	100K			BTS-100K	
R12	150K			BTS-150K	
R13	470K			BTS-470K	
R14	100K			BTS-100K	
R15	150K			BTS-150K	
R16	470K			BTS-470K	
R17	100K			BTS-100K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	HAMILTON PART No.	IRC PART No.	
R18	150K			BTS-150K	
R19	470K			BTS-470K	
R20	100K			BTS-100K	
R21	150K			BTS-150K	
R22	470K			BTS-470K	
R23	100K			BTS-100K	
R24	150K			BTS-150K	
R25	33K			BTS-33K	
R26	33K			BTS-33K	
R27	10K			BTS-10K	

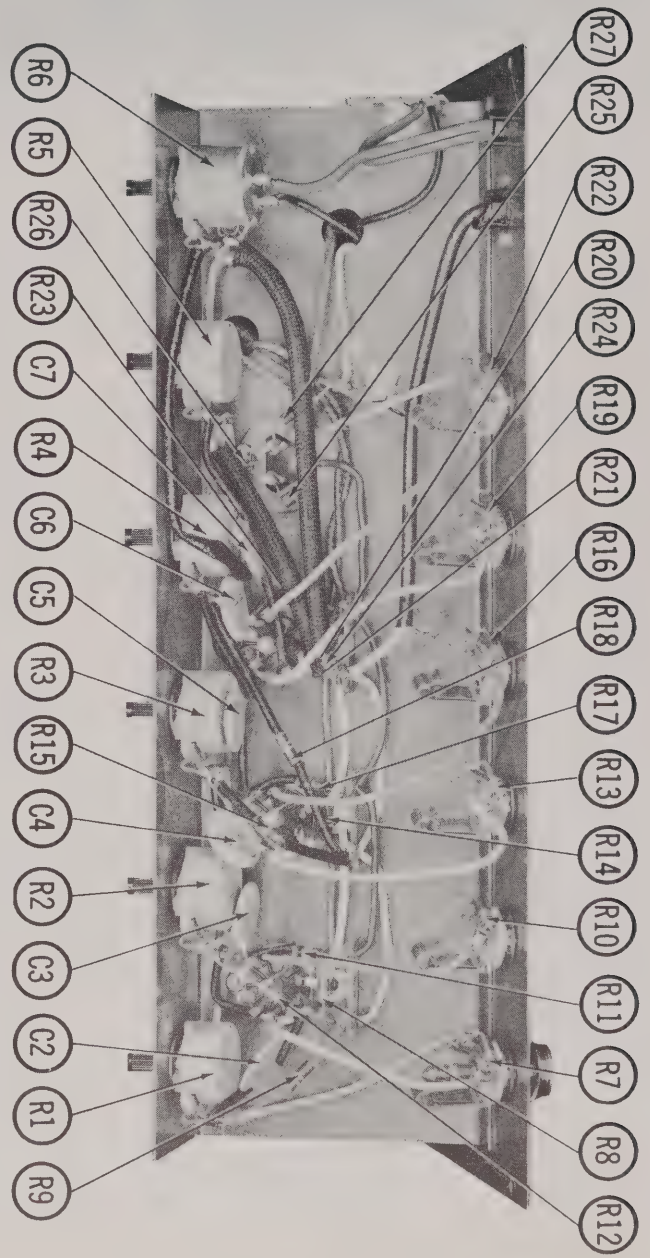
TRANSFORMER (POWER)

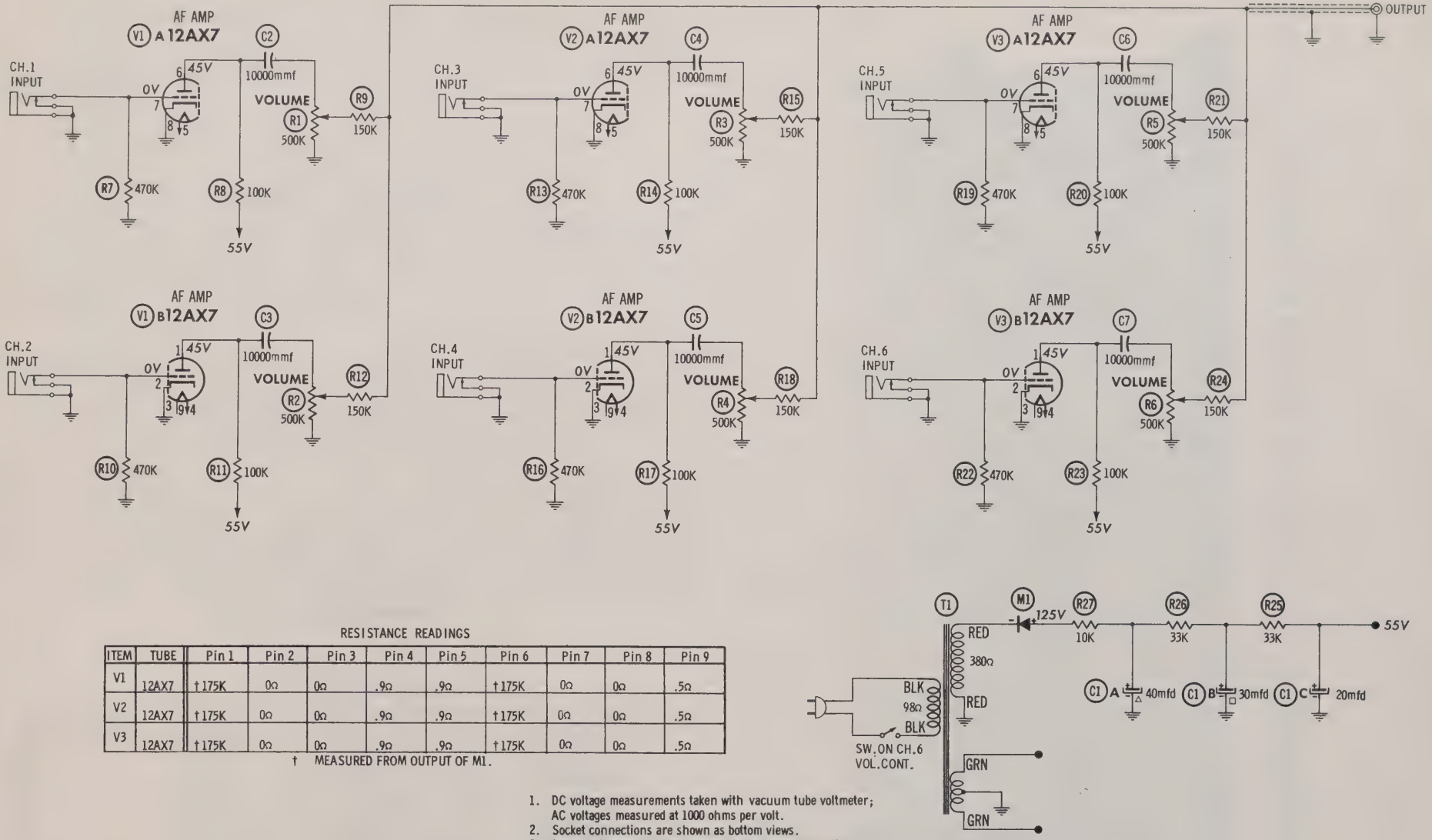
ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	HAMILTON PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .04A	150VAC @ .0012A	8VCT @ .34A		33GA07		P-3046		26R32	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT (Measured)	HAMILTON PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.0012A		1386	RS050	8S75	8J1	50	

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†175K	0Ω	0Ω	.9Ω	.9Ω	†175K	0Ω	0Ω	.5Ω
V2	12AX7	†175K	0Ω	0Ω	.9Ω	.9Ω	†175K	0Ω	0Ω	.5Ω
V3	12AX7	†175K	0Ω	0Ω	.9Ω	.9Ω	†175K	0Ω	0Ω	.5Ω

† MEASURED FROM OUTPUT OF M1.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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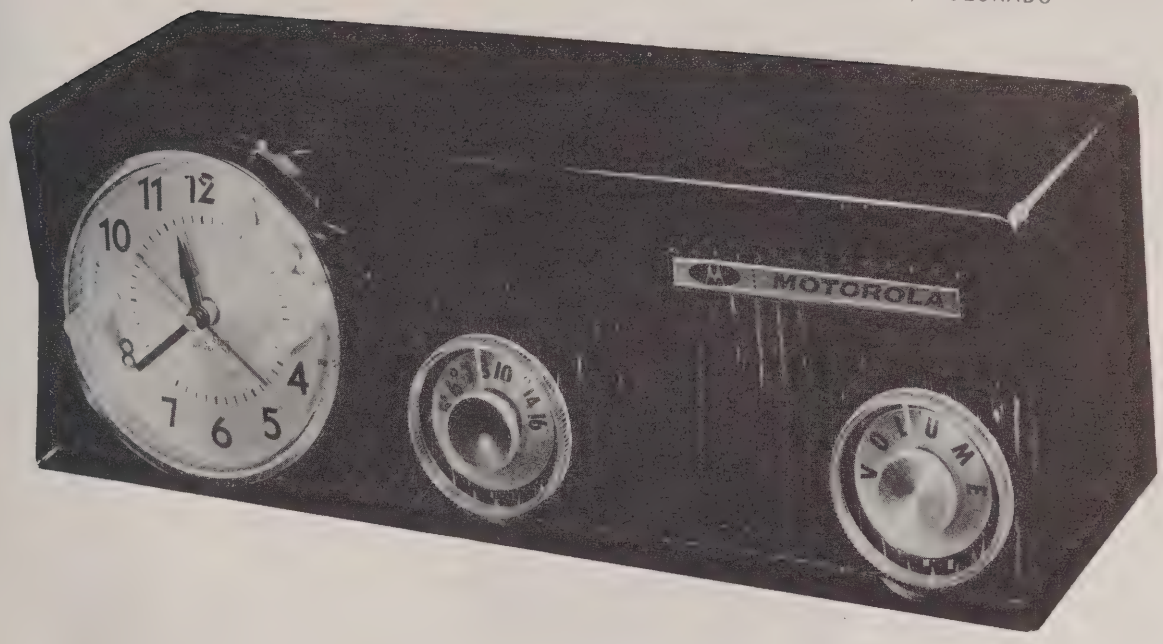
DENVER, COLORADO

MOTOROLA MODELS 57CS1, A, 57CS2, A, 57CS3, A, 57CS4, A (Ch. HS-527, HS-566)



MOTOROLA MODELS 57CS1, A, 57CS2, A, 57CS3, A, 57CS4, A (Ch. HS-527, HS-566)

TRADE NAME	Motorola Models 57CS1, 57CS2, 57CS3, 57CS4 (Ch. HS-527), 57CS1A, 57CS2A, 57CS3A, 57CS4A (Ch. HS-566)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Ill.
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycles — RATING .31 Amp. @ 117 Volts AC (31 Watts Without Clock)
TUNING RANGE—BROADCAST	535KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when the receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1400KC	1400KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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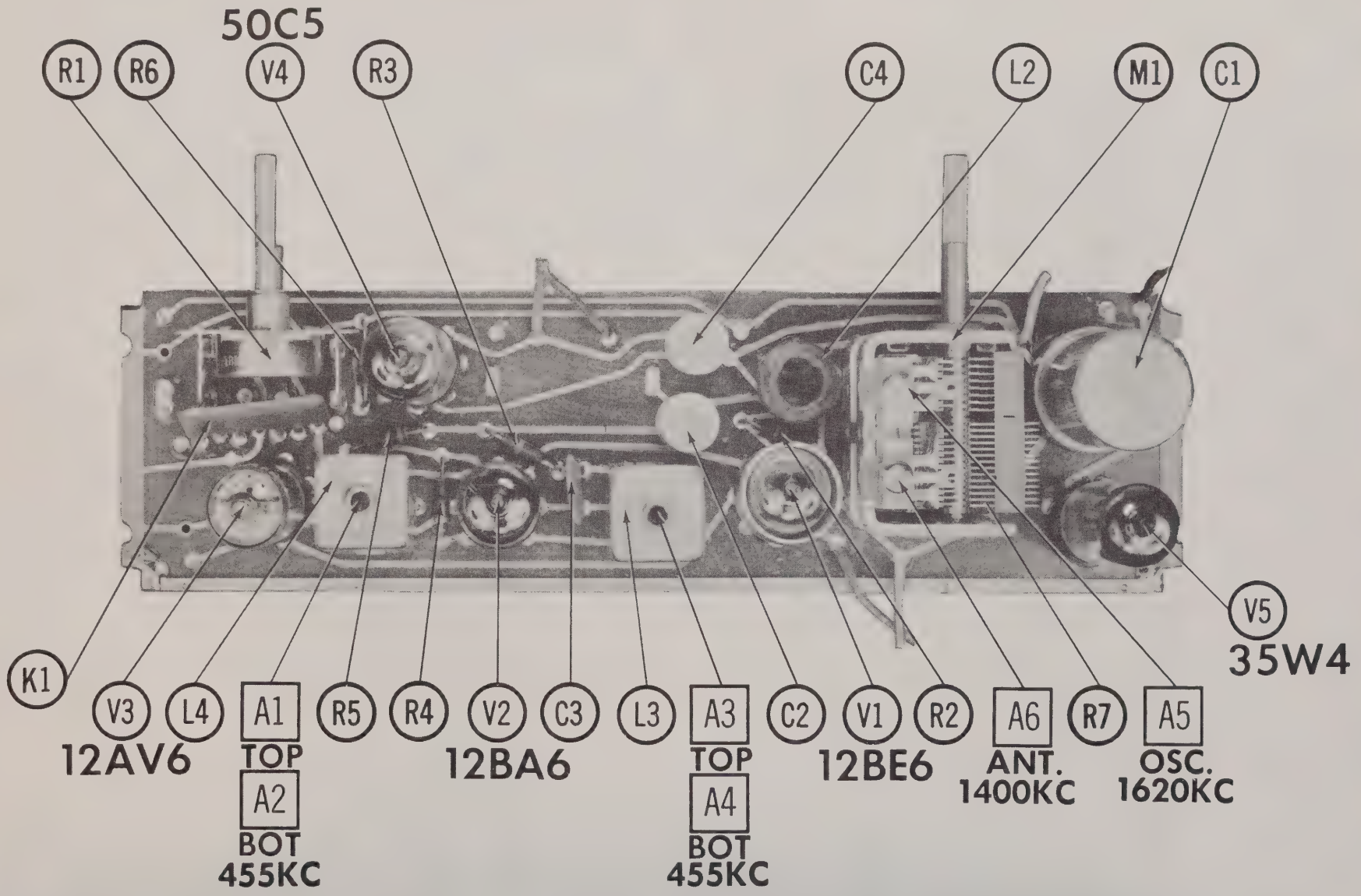


CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12AV6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■50	150	23B632015	AFH2-15-05	BBRD5315	TCD497	TDLD-8	FMD-301	TVA-2450
B	▲30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.05	200	8B120842	BPD-05	DF-503	BC2S47J		ACE615	2SE-S47	
C3	10000		21R120853	BPD-01	DD-103	BYA10S1M	ED-01	DC511	5HK-S1	
C4	.02	400	8K122301	BPD-02	DD-203	BC6S22J	ED-02	ACE612	4SE-S22	
C5	.047	400	8K490232	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	1Meg	½	18B636030					Volume

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R2	22K		6R6028	BTS-22K	
R3	22K		6R6028	BTS-22K	
R4	100Ω		6R6326	BTS-100	
R5	3.3Meg		6R2118	BTS-3.3Meg	
R6	150Ω		6K124797	BTS-150	
R7	1000Ω	1	6B119404	BTA-1000	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2700Ω	3-4Ω	25K635954	Z1103 ①	A-3025	A-3332	22S45 ②	S-12X	① Drill new mtg. hole. Tape tap on primary winding. ② Drill new mtg. hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	50K636011 ①	4A07	① Includes T1.

COILS (RF-IF)

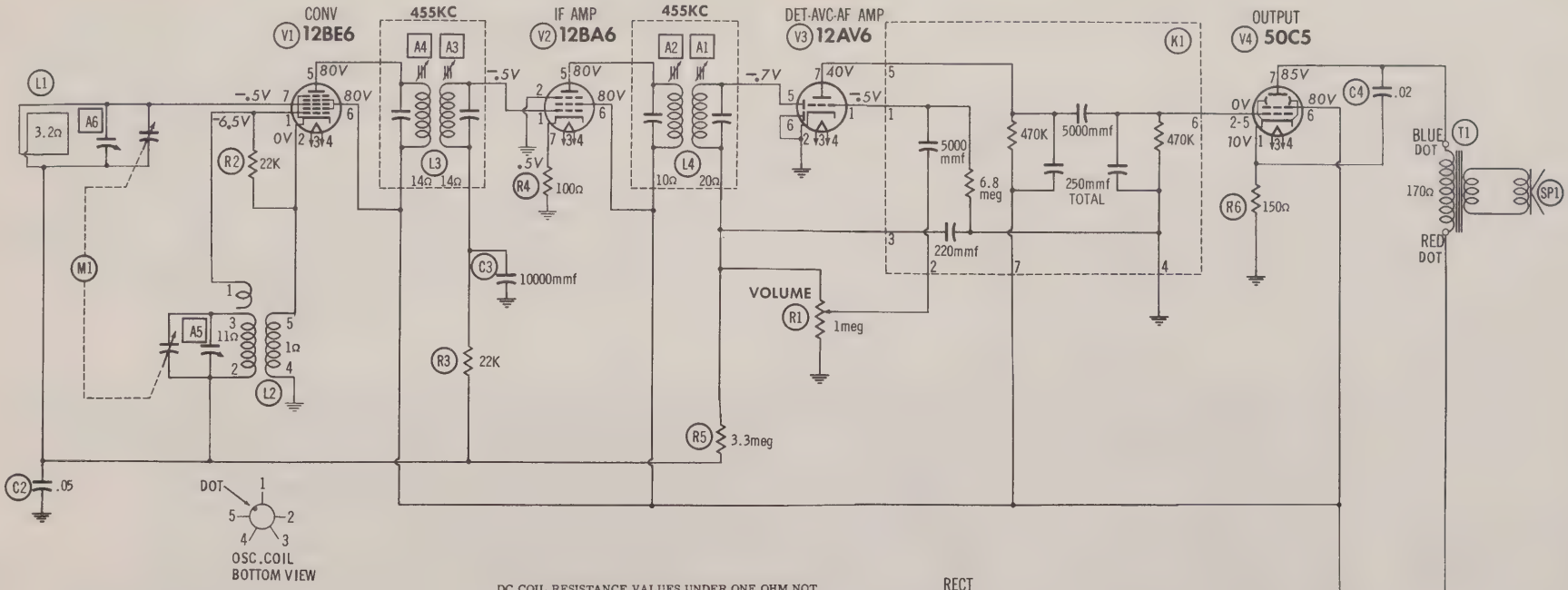
ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	1V636149				Includes cabinet back & AC cord.
L2	Osc. Coil	24K636206				
L3	Input IF	24K636016	16-6780	BC-356	13-PC1	
L4	Output IF	24K636017	16-6780	BC-357	13-PC2	

COMPONENT COMBINATIONS

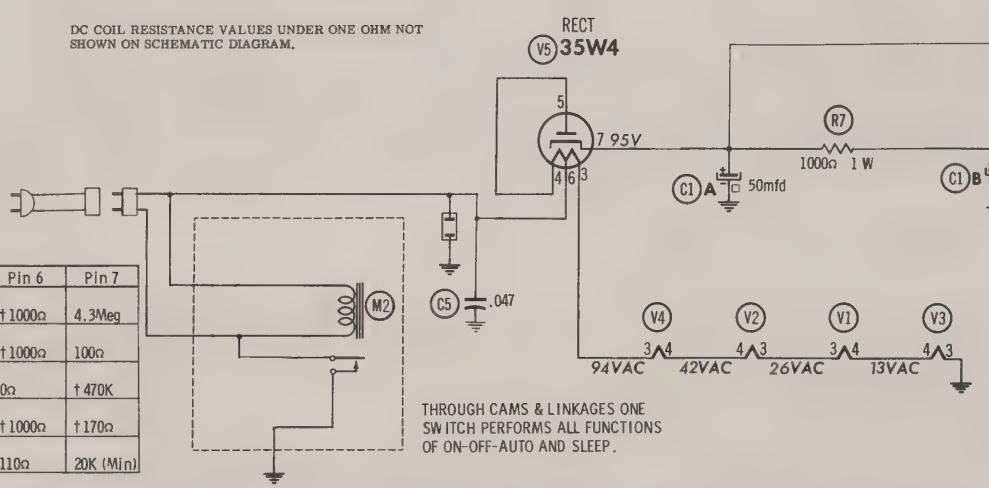
ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA	
K1	Det-Audio Net.	5000MMF, 5000MMF, 250MMF, 220MMF, 6.8Meg, 470K, 470K	51B635833	Aerovox	PA-512
				Centralab	PC-158
				Cornell-Dubilier	116TM2
				Erie	1408-02
				Sprague	DT-5

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Tuning Cap.	19B636031	2 Gang
M2	Clock	72D636022	Telechron
	Clock	72D636679	New Haven
	Crystal	61B636067	Clock
	Knobs	36C635812	Clock
	Knobs	36B636026	Volume & Tuning
	Cabinet	1V636131	Black, Model 57CS1, -A.
	Cabinet	1V636132	White, Model 57CS2, -A.
	Cabinet	1V636133	Pink, Model 57CS3, -A.
	Cabinet	1V636134	Green, Model 57CS4, -A.
	Scale	34C636018	Tuning
	Scale	34K636021	Volume



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.



THROUGH CAMS & LINKAGES ONE SWITCH PERFORMS ALL FUNCTIONS OF ON-OFF-AUTO AND SLEEP.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1Ω	22Ω	12Ω	†1000Ω	†1000Ω	4.3Meg
V2	12BA6	4.3Meg	0Ω	22Ω	36Ω	†1000Ω	†1000Ω	100Ω
V3	12AV6	6.8Meg	0Ω	0Ω	12Ω	1Meg	0Ω	†470K
V4	50C5	150Ω	470K	80Ω	36Ω	470K	†1000Ω	†170Ω
V5	35W4	NC	NC	80Ω	115Ω	115Ω	110Ω	20K (Min)

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION

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3924 MEADE ST.
DENVER

REGENCY
MODEL TR-5

REGENCY
MODEL TR-5

TRADE NAME Regency Model TR-5
MANUFACTURER Regency Div., I. D. E. A., Inc., 7900 Pendleton Pike, Indianapolis 26, Ind.
TYPE SET Battery Operated Transistorized AM Receiver

POWER SUPPLY 9 Volts DC RATING 6MA @ 9 Volts DC
TUNING RANGE—BROADCAST 535KC-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	262KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	535KC	Tuning gang fully closed	"	A4	"
3.		"	1630KC	Tuning gang fully open	"	A5	"
4.		"	1500KC	Tune to 1500KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. With tuning gang fully open, range should extend to 1630KC. If not, repeat steps 3 and 4.

DISASSEMBLY

1. With tuning dial in maximum counter clockwise position, remove center screw. Remove dial.
2. Remove volume control knob.
3. Remove 2 screws under tuning dial. Remove chassis from case.
4. Remove screw holding chassis spacer to front plate and tuning gang.
5. Remove 2 screws holding front plate to printed board bracket.
6. Remove antenna support clip from front plate.
7. Separate printed board from front plate in the same manner as opening a book.

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PARTS LIST AND DESCRIPTIONS

REGENCY MODEL TR-5

TRANSISTORS

ITEM No.	USE	REGENCY PART No.	NOTES
X1	Converter (2N172)	100-874-4	
X2	1st. IF Amp. (2N145)	100-875-8	
X3	2nd. IF Amp. -AF Amp. (2N145)	100-875-9	
X4	Output (353)	100-875-7	Note 1
X5	Output (353)	100-875-7	Note 1

Note 1. X4 and X5 must be a matched pair.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	REGENCY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	10	300-590						
B	50	10							
C	15	3							
C2	2	3	300-473-1	XPP6V2	NL2-3	TT6X2	ML2-6		TE-1051

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	REGENCY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	268		100-771-1							2%
C4	10		100-772-5	NP0-SI 10	TCZ-10	C10Q1C	TCO-10	ZT-541	5TCC-Q1	10%
C5	180		100-963-1							5% N2200
C6	6.8		100-772-8	NP0-SI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	10%
C7	270		100-963-2							5% N3300
C8	1000		20-075-21	SI 1000	D6-102	LT6D1	GP-1000	UC-531	5GA-D1	
C9	50000		100-772-7	BPD-05	DF-503					

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	REGENCY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	2000Ω		300-621-1					Volume + Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	REGENCY PART No.	IRC PART No.	
R2	3900Ω			BTS-3900	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	REGENCY PART No.	IRC PART No.	
R3	27Ω			BTS-27	

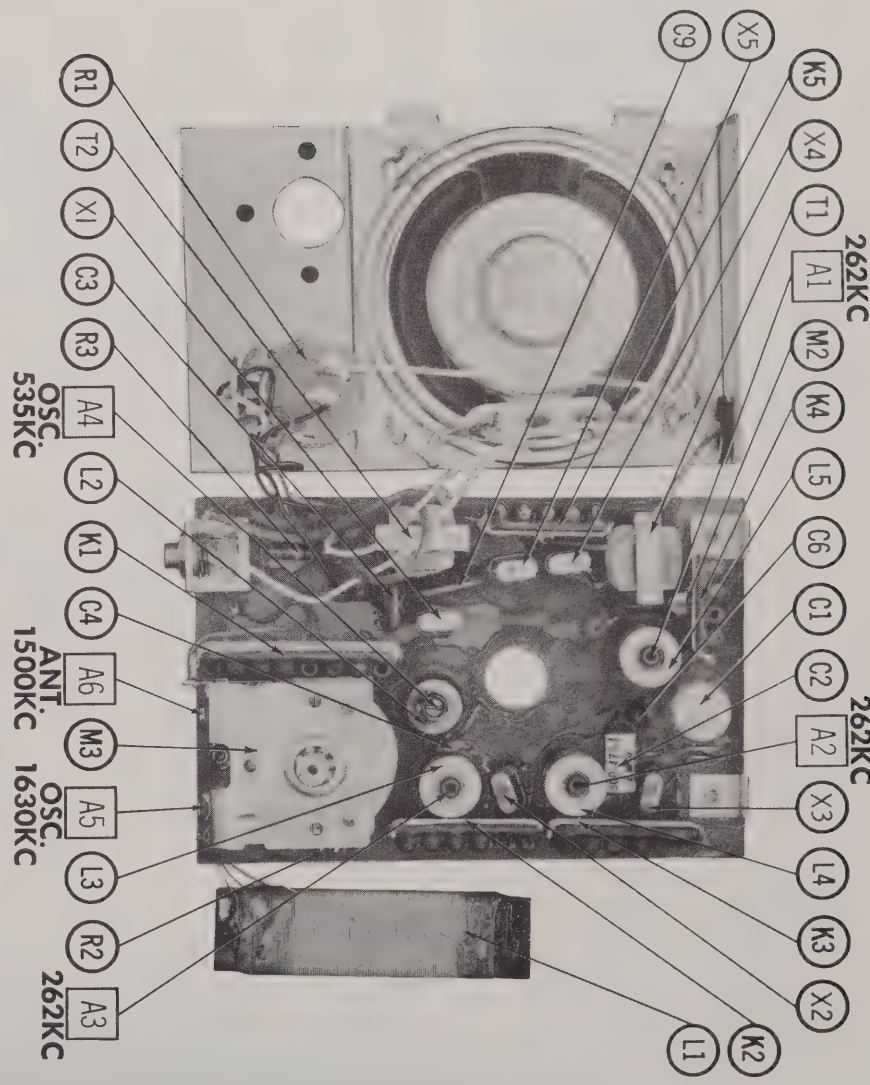
TRANSFORMER (DRIVER)

ITEM No.	Turns Ratio		REPLACEMENT DATA						NOTES
	PRI.	SEC.	REGENCY PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.5:	1	300-620				TR-3 ①		① Do not use tap on primary winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	REGENCY PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	712Ω	12Ω	300-619				TR-20		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	REGENCY PART No.	QUAM PART No.	
SP1	3"	PM	12Ω	300-606		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		REGENCY PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	300-622	14-9001			
L2	Osc. Coil	300-553				
L3	1st. IF	300-555-4				
L4	2nd. IF	300-555-4				
L5	3rd. IF	300-555-5				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	REGENCY PART No.	REPLACEMENT DATA
K1	Osc. -Mixer	20000MMF, 120MMF, 1000MMF, 10000MMF, 12K, 56K, 2200Ω, 470Ω	100-911	Erie 708-01
K2	1st. IF	39000MMF, 1000MMF, 220Ω, 68K, 470Ω	100-912	Erie 706-01
K3	2nd. IF	39000MMF, 12K, 1000Ω, 220Ω	100-913	Erie 706-02
K4	Detector	10000MMF, 10000MMF, 39000MMF, 120Ω	100-914	Erie 704
K5	Audio	120Ω, 10Ω 68Ω 4700Ω	100-915	Erie 705-01

BATTERIES

ITEM No.	VOLTAGE	REGENCY PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	100-876		2N6		246		M-1602		1602	

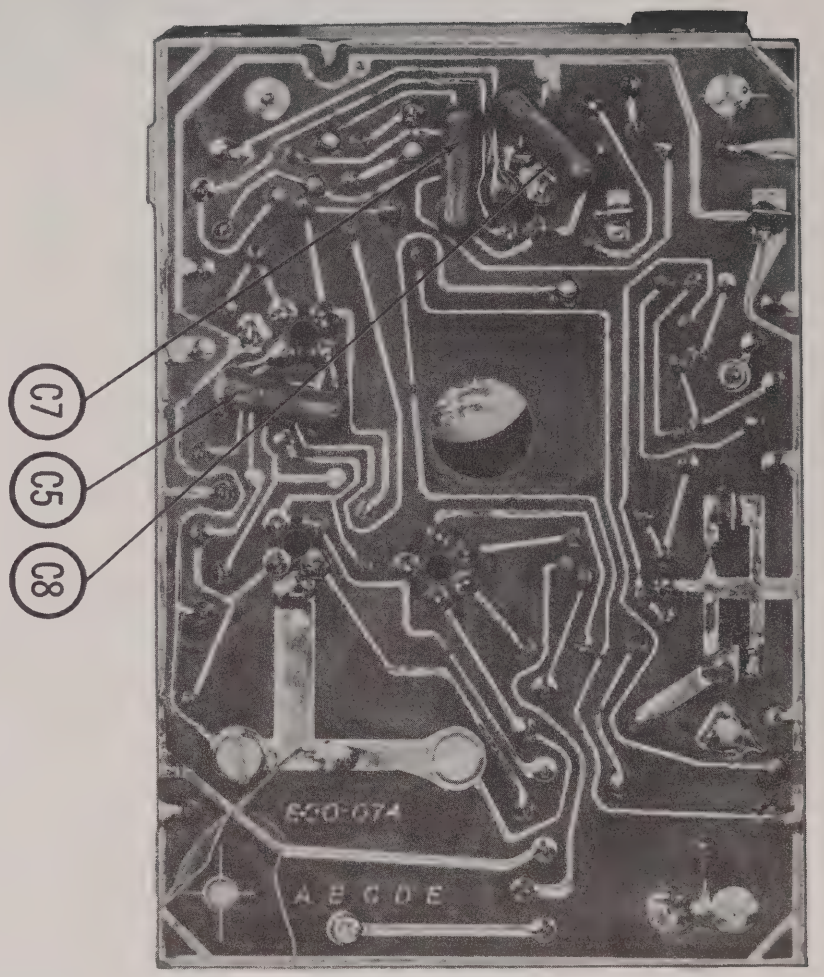
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		REGENCY PART No.	SYLVANIA PART No.	
M2	TS-117	100-773	1N60	Audio Detector (Pigtail)

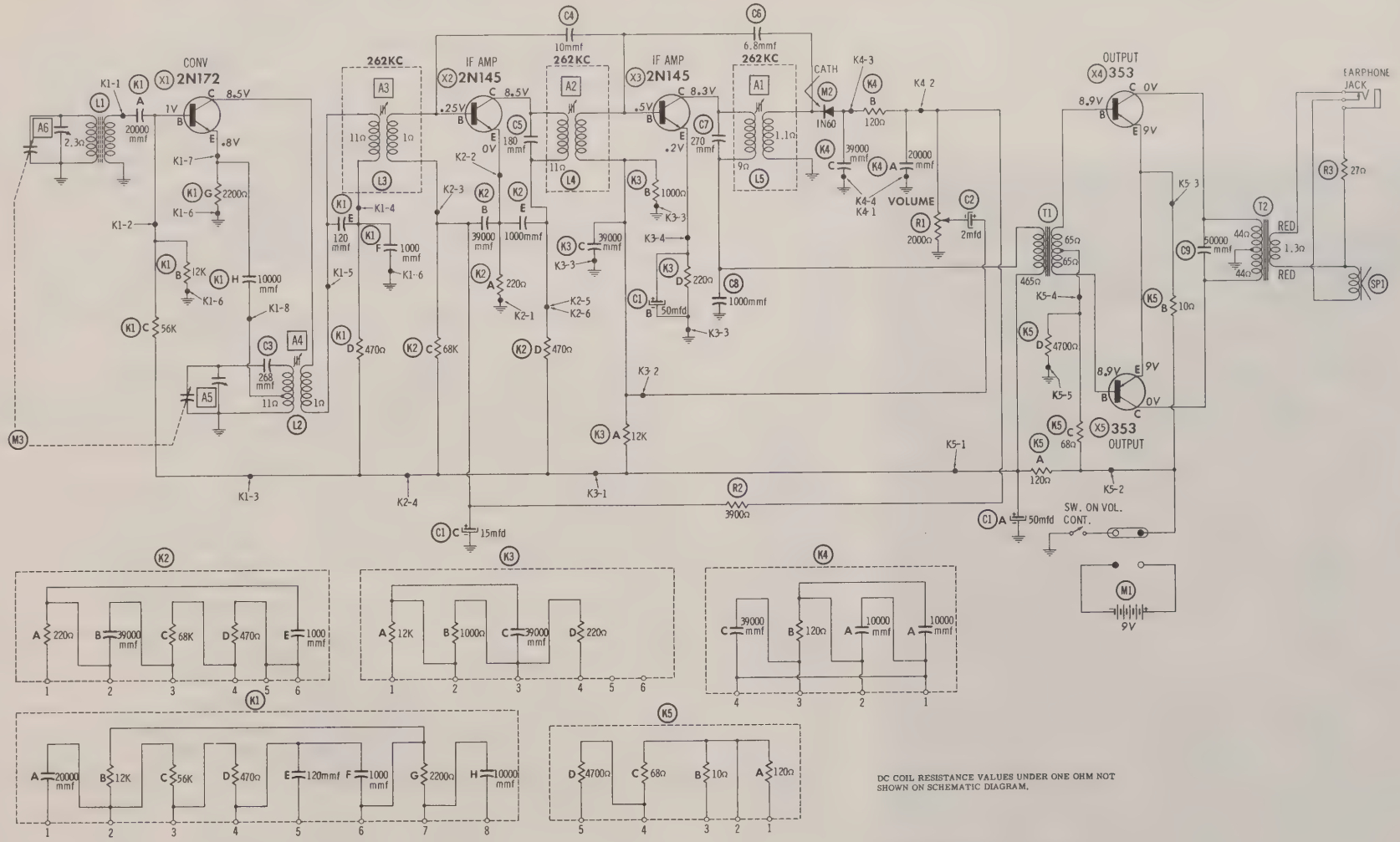
MISCELLANEOUS

ITEM No.	PART NAME	REGENCY PART No.	NOTES
M3	Tuning Cap.	300-624	2 Gang (14-140MMF, 10-135MMF)
	Phone Jack	300-434-2	
	Printed Board	600-074	
	Knob	100-732	Tuning
	Knob	100-924	On-off, volume
	Knob Screw	100-734	Tuning
	Case	100-964	Specify color

CHASSIS—BOTTOM VIEW



REGENCY MODEL TR-5



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

RESISTANCE NOT TAKEN BECAUSE OF WIDE VARIATIONS IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum. no signal apllied for voltage measurements.

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SENTINEL
CHASSIS AMP-138AA

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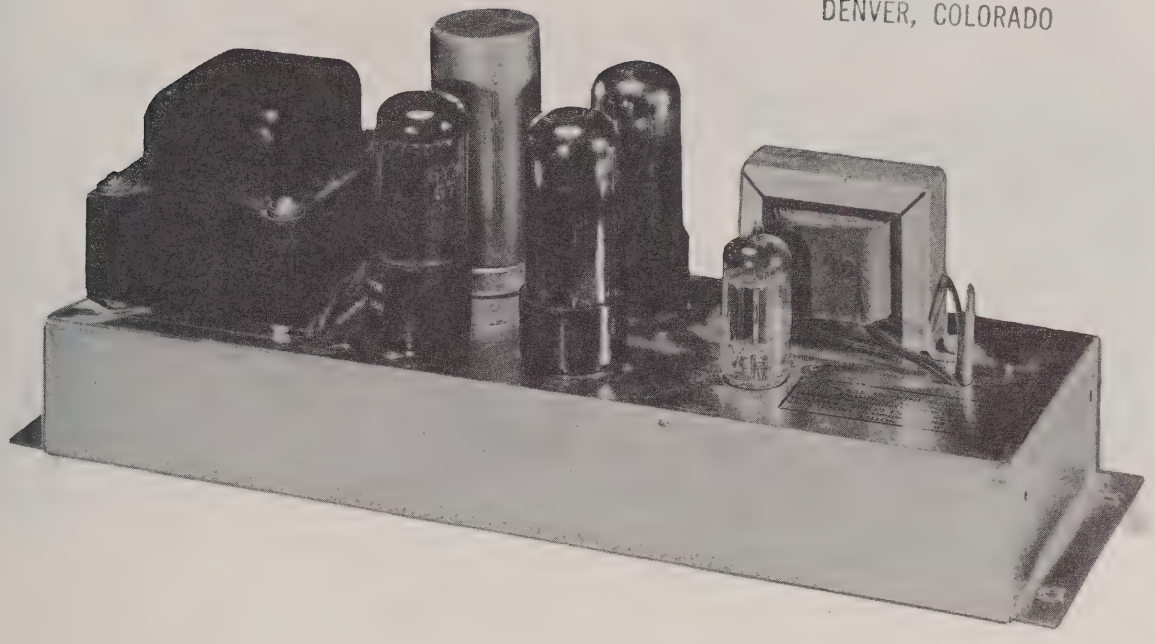
SENTINEL
CHASSIS AMP-138AA



SENTINEL
CHASSIS AMP-138AA

TRADE NAME	Sentinel Chassis AMP-138AA
MANUFACTURER	Sentinel Radio Co., Fort Wayne 4, Ind.
TYPE SET	AC Operated 10 Watt Audio Amplifier
TUBES (Four)	Types 12AX7 AF Amp.-Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-50/60 Cycles RATING .54 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

SENTINEL
CHASSIS AMP-138AA

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inv.	12AX7	
V2	Output	6V6GT	
V3	Output	6V6GT	
V4	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SENTINEL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	450	270201-56	AFH4-78	DO640	FP429	TMQ-92	Q-380	TVL-4734
B	■30	450							
C	▲10	450							
D	20	25							
C2	20	25	270027-2	PRS25V25	BBR20-25	TC26	TD-25-25	FM-0225	TVA-1205

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SENTINEL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	220		250207-48	SI 220	D6-221	L10T22	GP-220	UC-5322	5GA-T22	
C4	.047	200	250201-11	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C5	.047	200	250201-11	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C6	.01	600		BPD-01	D6-103	CUB6S1	ED-01	GEM-611	6TM-S1	Note 1
C7	10000		250219-2	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	

Note 1. Some versions may use .001MFD in this application (Part #250201-1).

RESISTORS

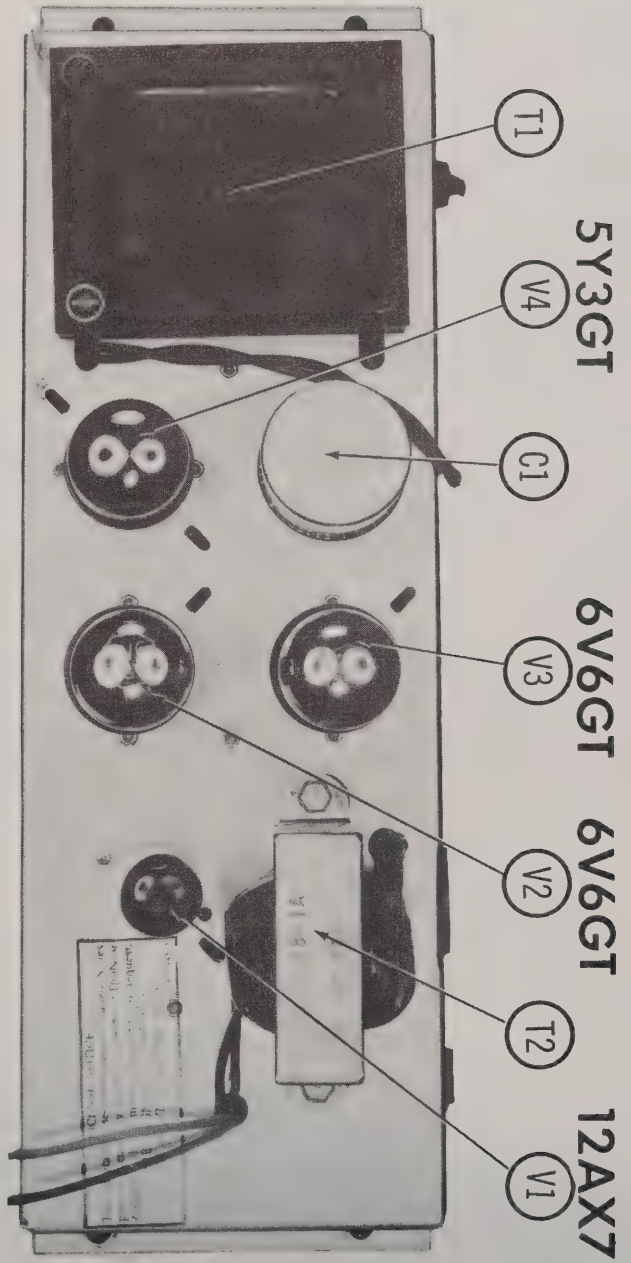
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SENTINEL PART No.	IRC PART No.	
R1	470K		230104-94	BTS-470K	
R2	47K		230104-82	BTS-47K	
R3	470K		230104-94	BTS-470K	
R4	3300Ω		230104-68	BTS-3300	
R5	220Ω		230104-54	BTS-220	
R6	15K		230104-76	BTS-15K	
R7	470K		230104-94	BTS-470K	
R8	100K		230104-86	BTS-100K	
R9	6800Ω		230104-72	BTS-6800	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SENTINEL PART No.	IRC PART No.	
R10	220K		230104-90	BTS-220K	
R11	270Ω	2	230096-55	BTB-270	
R12	220K		230104-90	BTS-220K	
R13	2700Ω		230104-67	BTS-2700	
R14	470Ω	2	230096-58	BTB-470	
R15	500Ω	10	240021-2	PW10-500	Note 1
R16	100Ω		230104-50	BTS-100	
R17	100Ω		230104-50	BTS-100	

Note 1. Used only when power transformer (T1) part #300078-1 is used.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	SENTINEL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @.54A	586VCT @.078A	5VAC @ 2A	6.3VAC @1.5V	300078-2 ①	P9305 ②	P-3052		22R04 ②	R-9B ②

① Alternate part #300078-1.
② Tape 6.3V center tap.

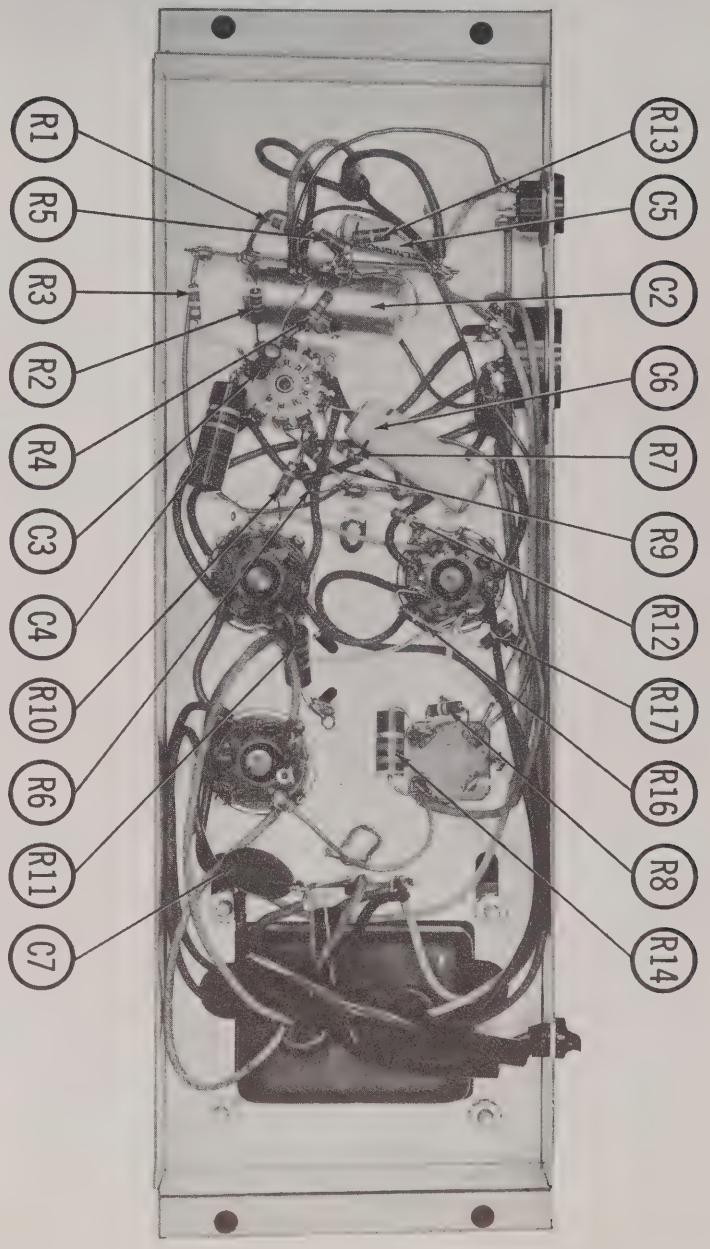
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SENTINEL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5900Ω CT	3-4Ω	330038-1A	Z1003 ①	A-2901 ①	A-3870	22S58	S-55X	① Drill new mounting hole.

MISCELLANEOUS

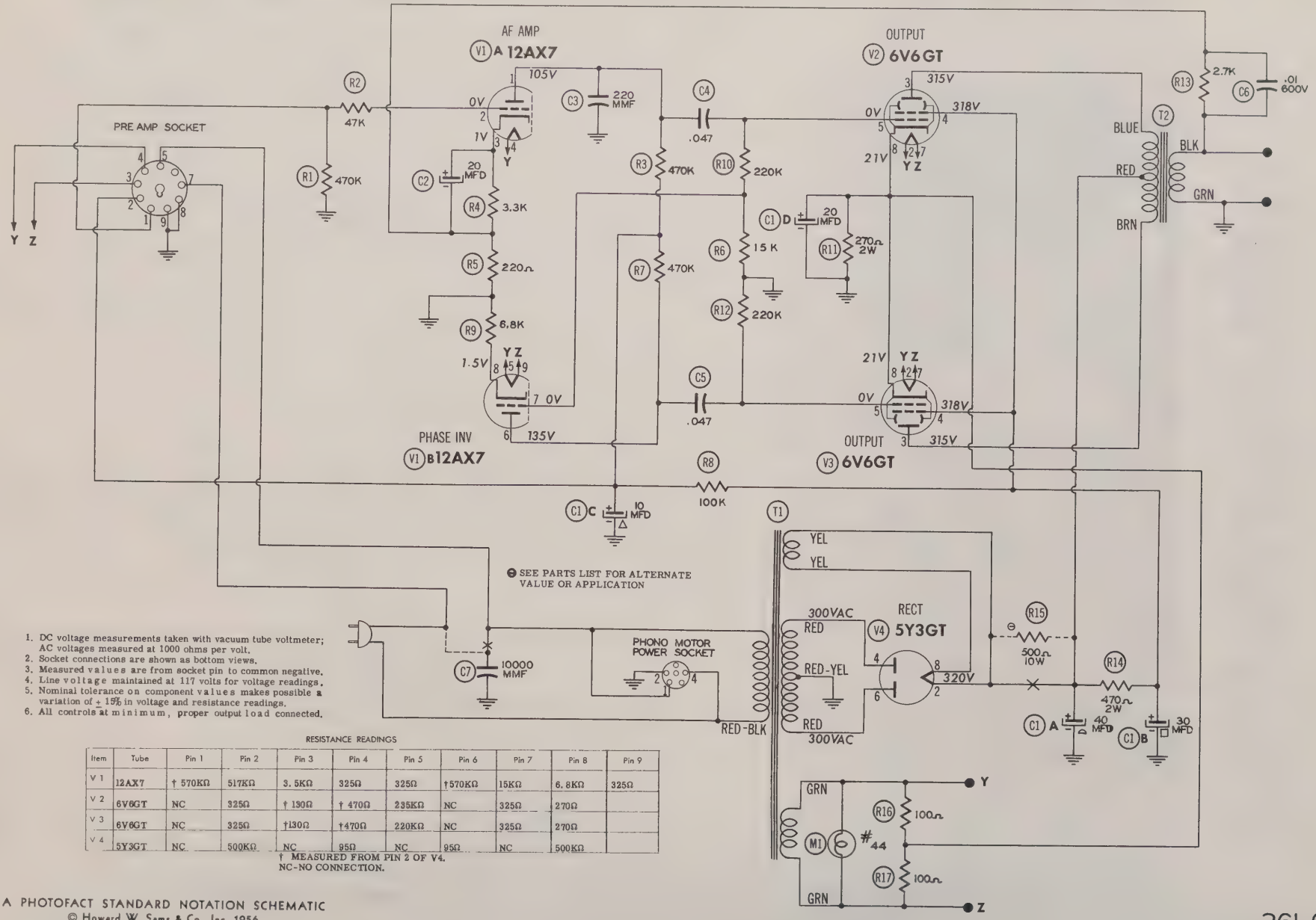
ITEM No.	PART NAME	SENTINEL PART No.	NOTES
M1	Pilot Light		#44

CHASSIS—BOTTOM VIEW



SENTINEL CHASSIS AMP-138AA

SENTINEL CHASSIS AMP-138AA



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	† 570KΩ	517KΩ	3.5KΩ	325Ω	325Ω	†570KΩ	15KΩ	6.8KΩ	325Ω
V 2	6V6GT	NC	325Ω	† 130Ω	† 470Ω	235KΩ	NC	325Ω	270Ω	
V 3	6V6GT	NC	325Ω	†130Ω	†470Ω	220KΩ	NC	325Ω	270Ω	
V 4	5Y3GT	NC	500KΩ	NC	95Ω	NC	95Ω	NC	500KΩ	

† MEASURED FROM PIN 2 OF V4.
NC-NO CONNECTION.

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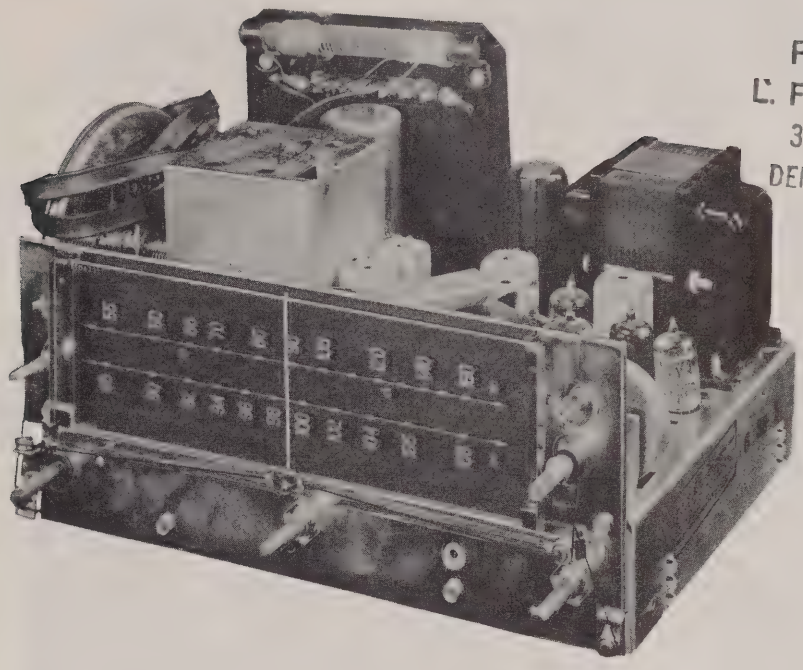
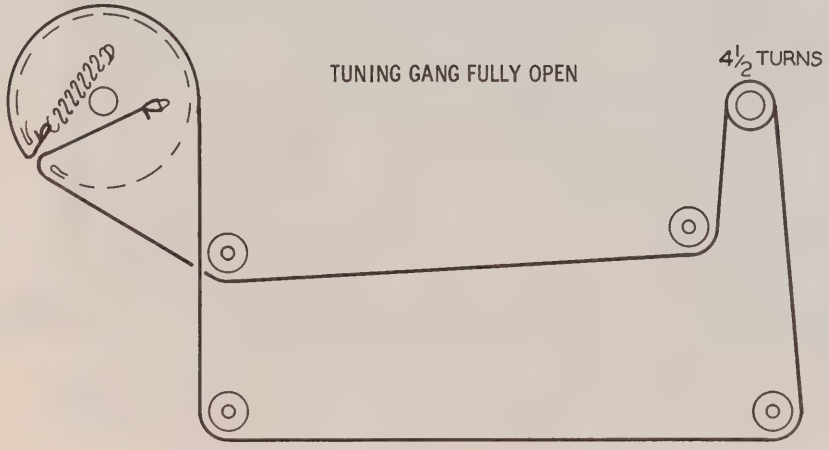
3924 MEADE ST.
DENVER, COLORADO



SENTINEL
CHASSIS CR-739

TRADE NAME	Sentinel Chassis CR-739	
MANUFACTURER	Sentinel Radio Co., Fort Wayne 4, Indiana	
TYPE SET	AC Operated FM-AM Receiver	
TUBES	Ten	
POWER SUPPLY	110-120 Volts AC	RATING .71 Amp. @ 117 Volts AC (75 Watts)
TUNING RANGE-BROADCAST	540KC-1620KC	FREQ. MOD. 88MC-108MC



DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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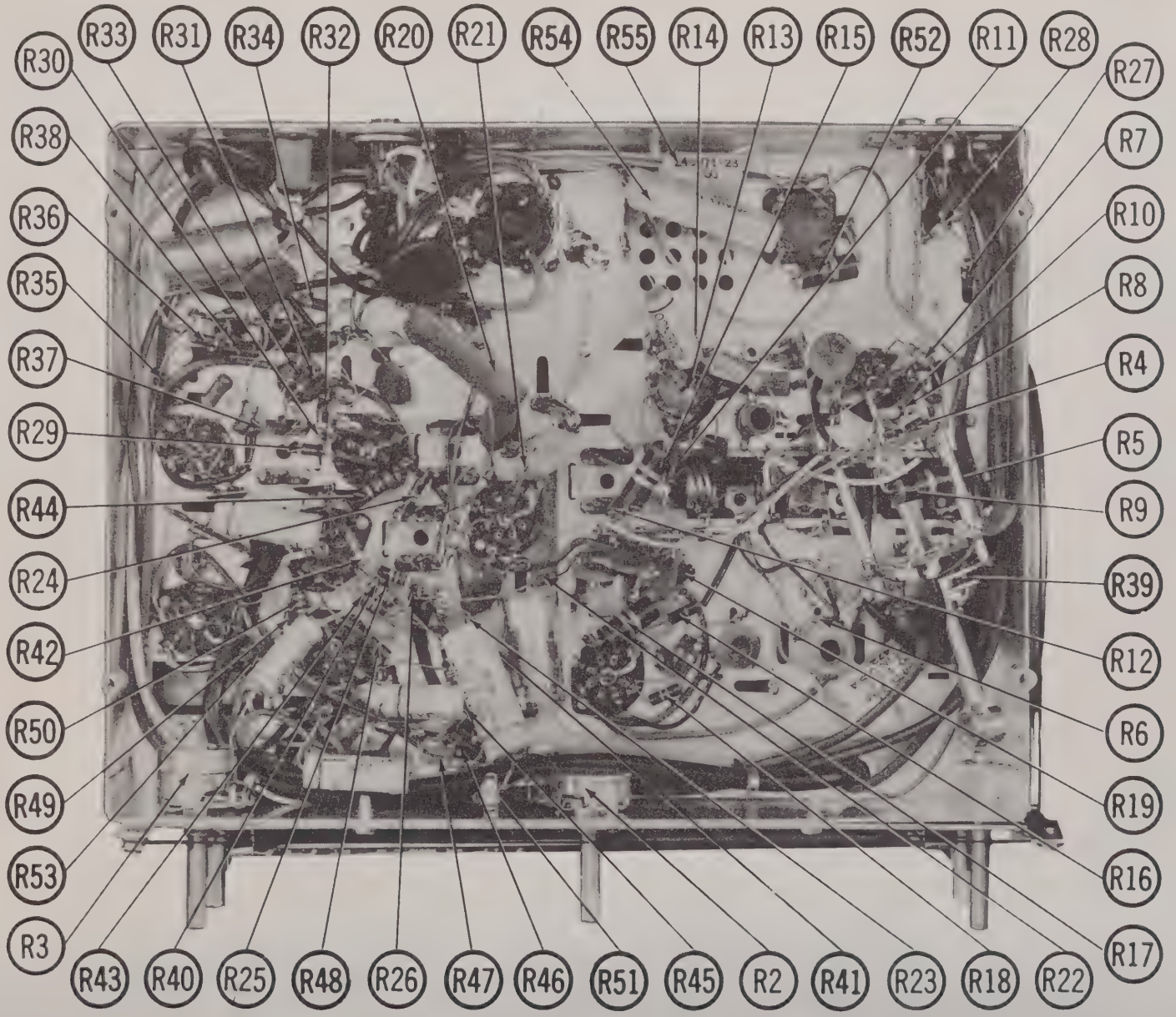
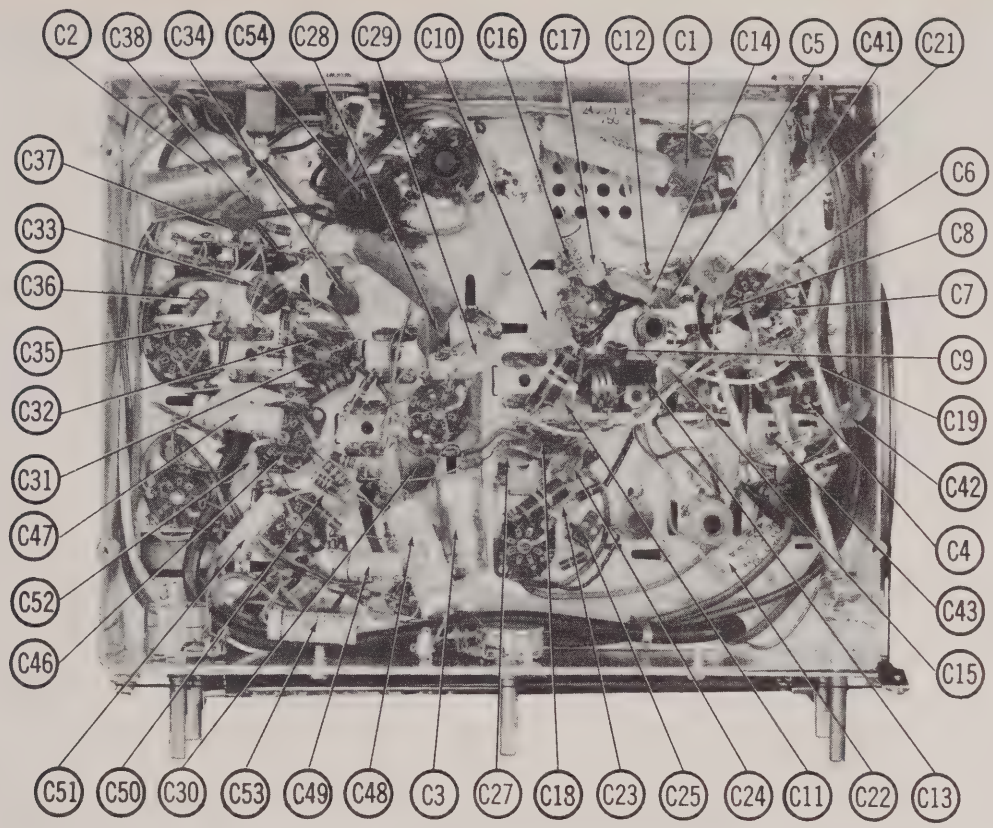
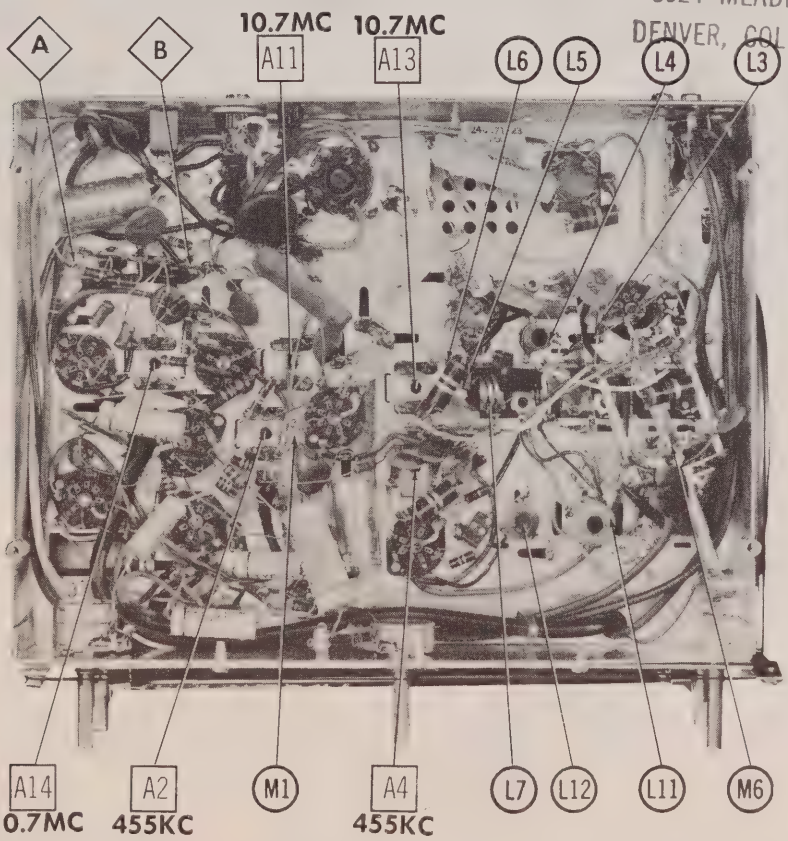


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

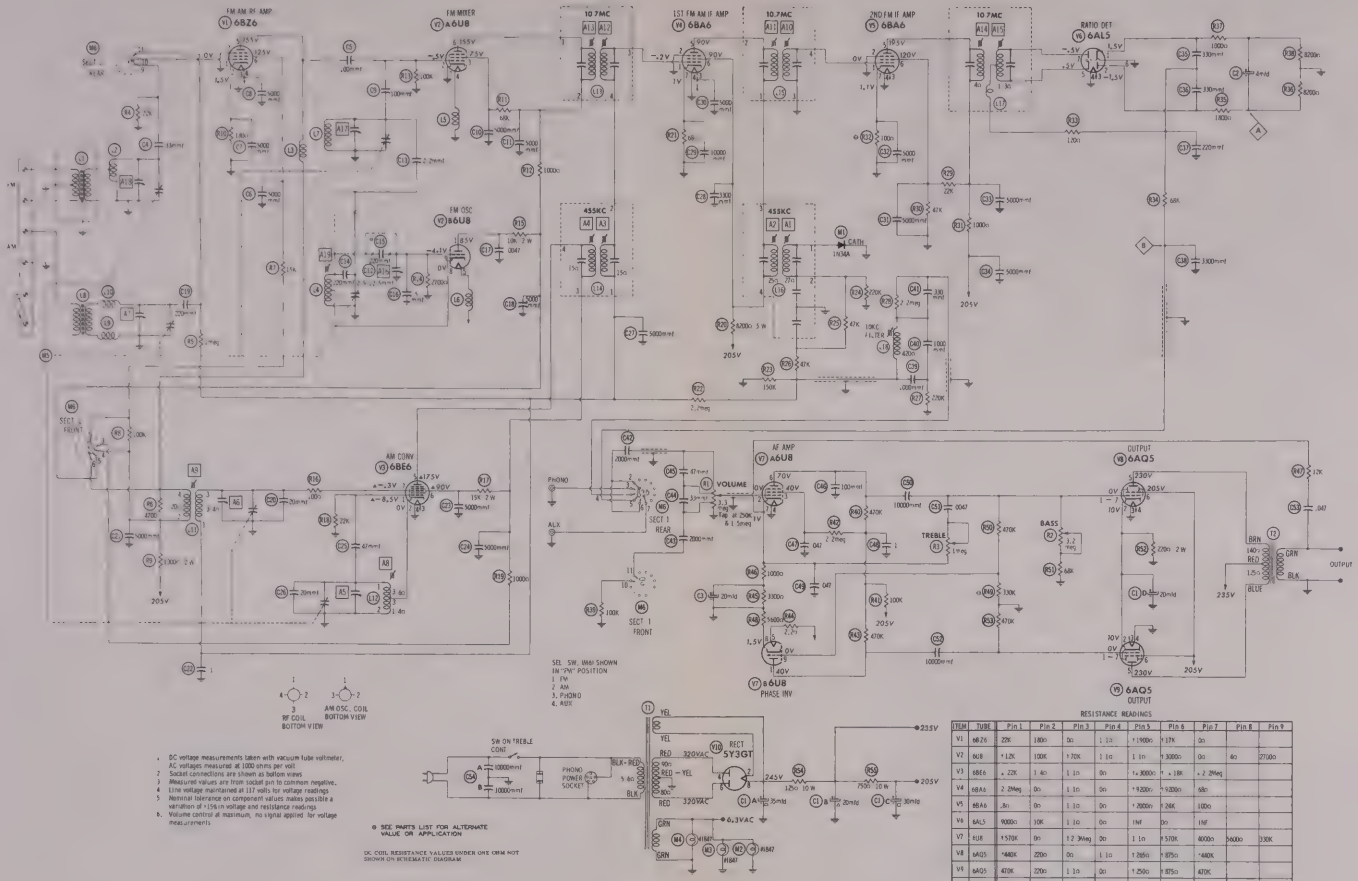


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



CHASSIS BOTTOM VIEW INDUCTOR AND ALIGNMENT IDENTIFICATION



1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	22K	180Ω	0Ω	1.1Ω	↑190Ω	↑17K	0Ω		
V2	6U8	↑12K	100K	↑70K	1.1Ω	1.1Ω	↑300Ω	0Ω	4Ω	27000
V3	6BE6	∞ 22K	1.4Ω	1.1Ω	0Ω	↑∞300Ω	↑ ∞ 18K	∞ 2.2MEG		
V4	6BA6	2.2MEG	0Ω	1.1Ω	0Ω	↑920Ω	↑920Ω	68Ω		
V5	6BA6	8Ω	0Ω	1.1Ω	0Ω	↑700Ω	↑26K	100Ω		
V6	6AL5	9000Ω	10K	1.1Ω	0Ω	INF	0Ω	INF		
V7	6U8	↑570K	0Ω	12.3MEG	0Ω	1.1Ω	↑570K	4000Ω	5600Ω	330K
V8	6AQ5	*440K	220Ω	0Ω	1.1Ω	↑265Ω	↑875Ω	*440K		
V9	6AQ5	470K	220Ω	1.1Ω	0Ω	↑250Ω	↑875Ω	470K		
V10	5Y3GT	NC	230Ω (MIN)	NC	80Ω	TP	2Ω	NC	80Ω (MIN)	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM PIN 8 OF V10
∞ MEASURED IN "AM" POSITION
* BASS CONTROL SET AT MAXIMUM
NC NO CONNECTION
TP TIE POINT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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361-10

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use and insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Treble control to sharp tune position.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400~Mod)	AM	1000KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	10MMF	High side to AM antenna terminal. Low side to chassis.	1400KC	"	1400KC	"	A5, A6, A7	"
3.	"	"	600KC	"	600KC	"	A8, A9	Adjust for maximum output. Repeat steps 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 5 (plate) of 6BZ6 (V1). Low side to chassis.	10.7MC (Unmod)	FM	Low freq. end of dial	DC probe thru 1Meg to point (A). Common to chassis.	A10, A11, A12, A13, A14	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe thru 1Meg to point (B). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 4 and 5.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD & 1000Ω in Series	High side to pin 5 (Plate) of 6BZ6 (V1). Low side to chassis.	10.7MC (300KC Swp)	FM	Low freq. end of dial	Vert. Amp. thru 1Meg to point (A). Low side to chassis.	A10, A11, A12, A13, A14	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. thru 100K to point (B). Low side to chassis.	A15	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines. Repeat steps 4 and 5.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	120Ω & 150Ω Carbon Resistors	High side thru 120Ω to FM antenna terminal. Low side thru 150Ω to chassis.	106MC	FM	106MC	DC probe thru 1Meg to point (A). Common to chassis.	A16, A17, A18	Adjust for maximum deflection.
7.	"	"	90MC	"	90MC	"	A19	Adjust for maximum deflection. Repeat steps 6 and 7.

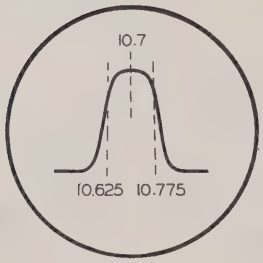


FIG. 1

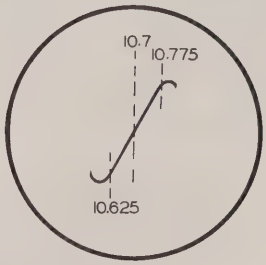


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BZ6	
V2	FM Mixer-Oscillator	6U8	
V3	AM Converter	6BE6	
V4	1st. IF Amplifier	6BA6	
V5	2nd. FM IF Amplifier	6BA6	

ITEM No.	USE	TYPE	NOTES
V6	Ratio Detector	6AL5	
V7	AF Amp.-Phase Inverter	6U8	
V8	Output	6AQ5	
V9	Output	6AQ5	
V10	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SENTINEL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲35	450	270021-59	AFH4-71	CO330	FP446	TMT-37	T-160	R2369 *
B	▲20	450			BBR20-25	TC45	ML-20-25	MMT-0220	
C	■30	450							
D	20	25							
C2	4	50	270027-27	PRS150V4	BBR4-50	TC30	TD-4-50	MT-0504	TVA-1303
C3	20	25	270027-28	SRE25V20	BBR20-25	TC45	ML-20-25	MMT-0220	TE-1206

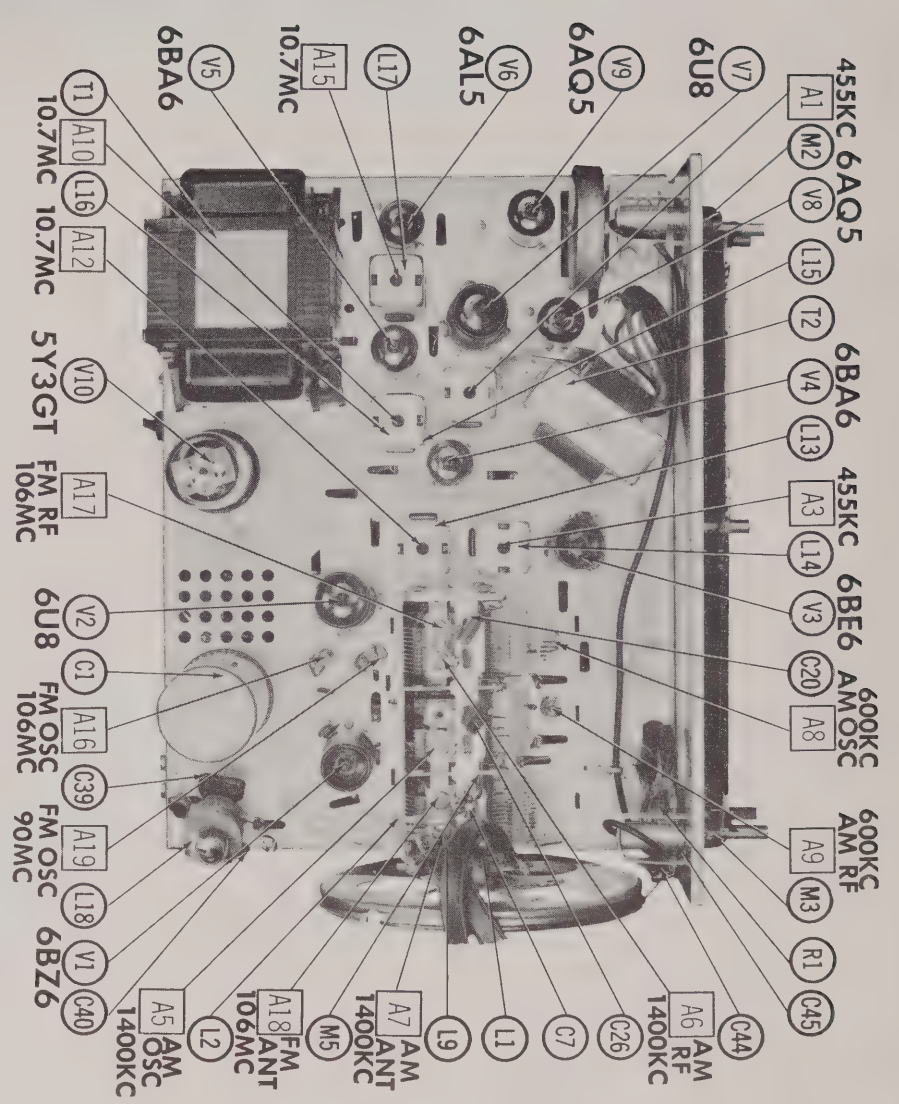
* Non-Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SENTINEL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	33	500	250187-47	1464-000033		5R5Q33			MS-433	
C5	100	500	250187-53	1464-0001		5R5T1		MCE235	MS-31	
C6	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C7	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C8	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C9	100	500	250187-53	1464-0001		5R5T1		MCE235	MS-31	
C10	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C11	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C12	2.5-12.5		250188-9							
C13	2.2		250221-118	NP0-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2	ZT-5522	5TCCB-V22	
C14	220	500	250159-55	1464-00022		5R5T22			MS-322	5%
C15	220	500	250159-55	1464-00022		5R5T22			MS-322	5% Note 1
C16	5		250088-138	N750-SI 5	TCN-5	C10V5U	TC7-5	NT-555	5TCU-V5	N750
C17	.0047	400	250211-5	BPD-0047	DD-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C18	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C19	220	500	250187-57	1464-00022		5R5T22			MS-322	
C20	20	500	250187-5	1464-00002		5R5Q2			MS-42	5%
C21	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C22	.1	200	250202-13	P288N-1	DF-104	CUB2P1		GEM-401	2TM-P1	
C23	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C24	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C25	47	500	250187-49	1464-000047		5R5Q47			MS-447	
C26	20	500	250187-5	1464-00002		5R5Q2			MS-42	5%
C27	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C28	3300		250175-28	BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33	
C29	10000		250218-19	BPD-01	DD-103	BYA6SI	ED-01	DC521	5HK-SI	
C30	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C31	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C32	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C33	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C34	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C35	330		250207-49	SI 330	D6-331	LT6T33	GP-330	UC-5333	5GA-T33	
C36	330		250207-49	SI 330	D6-331	LT6T33	GP-330	UC-5333	5GA-T33	
C37	220		250218-5	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C38	3300		250175-28	BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33	
C39	1000		250228-354	1464-001		1R5D1			MS-21	5%
C40	1000		250228-354	1464-001		1R5D1			MS-21	5%
C41	330		250207-49	SI 330	D6-331	LT6T33	GP-330	UC-5333	5GA-T33	
C42	2000		250218-20	BPD-002	DD-202	BYA10D2	ED-002	DC522	5GA-D2	
C43	2000		250218-20	BPD-002	DD-202	BYA10D2	ED-002	DC522	5GA-D2	
C44	33		250218-21	N750-SI 33	TCN-33	C10Q33U	TC7-33		5TCU-Q33	N750
C45	47		250218-17	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C46	100		250218-22	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C47	.047	200	250211-11	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SENTINEL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C48	.1	400	250211-13	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C49	.047	200	250211-11	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C50	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C51	.0047	400	250211-5	BPD-0047	D6-472	CUB6D47	GP-470 0	GEM-6247	6TM-D47	
C52	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C53	.047	200	250211-11	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C54A	10000	1500	250219-3							
B	10000	1500								

Note 1. Not used in some versions

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SENTINEL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3.3Meg	½	220131-3				UDT-303	Volume, Tap ⓐ 250K & 1.5 Meg
B	Shaft							
R2A	3.2Meg	½	220072-27	B-85	A47-3Meg-Z	Q13-140	U57	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1Meg	½	220073-20	B-70	A47-1Meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SENTINEL PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R4	22K		230104-78	BTS-22K	
R5	1Meg		230104-98	BTS-1Meg	
R6	4700Ω		230104-70	BTS-4700	
R7	15K		230104-76	BTS-15K	
R8	100K		230104-86	BTS-100K	
R9	1000Ω	2	230096-62	BTB-1000	
R10	180Ω		230104-53	BTS-180	
R11	68K		230104-84	BTS-68K	
R12	1000Ω		230104-62	BTS-1000	
R13	100K		230104-86	BTS-100K	
R14	2700Ω		230104-67	BTS-2700	
R15	10K	2	230096-74	BTB-10K	
R16	100Ω		230104-50	BTS-100	
R17	15K	2	230096-76	BTB-15K	
R18	22K		230104-78	BTS-22K	
R19	1000Ω		230104-62	BTS-1000	
R20	8200Ω	5	240071-13	PW7-8200	
R21	68Ω		230104-48	BTS-68	
R22	2.2Meg		230104-102	BTS-2.2Meg	
R23	150K		230104-88	BTS-150K	
R24	220K		230104-90	BTS-220K	
R25	47K		230104-82	BTS-47K	
R26	47K		230104-82	BTS-47K	
R27	220K		230104-90	BTS-220K	
R28	2.2Meg		230104-102	BTS-2.2Meg	
R29	22K		230104-78	BTS-22K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SENTINEL PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R30	47K		230104-82	BTS-47K	
R31	1000Ω		230104-62	BTS-1000	
R32	100Ω		230104-50	BTS-100	Note 1
R33	120Ω		230104-51	BTS-120	
R34	68K		230104-84	BTS-68K	
R35	1800Ω		230104-65	BTS-180 0	
R36	8200Ω		230104-73	BTS-8200	
R37	1000Ω		230104-62	BTS-1000	
R38	8200Ω		230104-73	BTS-8200	
R39	100K		230104-86	BTS-100K	
R40	470K		230104-94	BTS-470K	
R41	100K		230104-86	BTS-100K	
R42	2.2Meg		230104-102	BTS-2.2Meg	
R43	470K		230104-94	BTS-470K	
R44	2.2Ω		230109-2		
R45	3300Ω		230104-68	BTS-3300	
R46	1000Ω		230104-62	BTS-1000	
R47	12K		230104-75	BTS-12K	
R48	5600Ω		230104-71	BTS-5600	
R49	330K			BTS-330K	Note 2
R50	470K		230104-94	BTS-470K	
R51	68K		230104-84	BTS-68K	
R52	220Ω	2	230106-54	BTB-220	
R53	470K		230104-94	BTS-470K	
R54	125Ω	10	240071-6	1 3/4A-125	
R55	750Ω	10	240071-23	PW10-750	

Note 1. Some versions may use a 68Ω in this application (Part #230104-48).
Note 2. Some versions may use a 470K in this application (Part #230104-94).

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA SENTINEL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ .71A	540VCT ⓐ .100A	5VAC ⓐ 2A	6.3VAC ⓐ 3.4A	300081-3	P9208①②		PC8405 ① ②		R-12A ① ②

① Fabricate mounting.
② Tape center tap on 6.3V winding.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SENTINEL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7200Ω CT	3-4Ω	330039-1	Z1009	A-2901	A-3852	24S61	S-53X	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SENTINEL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Trans.	360491-3				
L2	FM Ant. Coil	360656-1				
L3	RF Choke	360522-9	19-1002		4606	2 Microhenries
L4	FM Osc. Coil	360628-1				
L5	Fil. Choke	360522-9	19-1002		4606	2 Microhenries
L6	Fil. Choke	360522-9	19-1002		4606	2 Microhenries
L7	FM RF Coil	360629-1				
L8	AM Loop Stick	460894-3				Includes complete assy.
L9	AM Ant. Coil	360522-9	19-1002		4606	2 Microhenries
L10	AM Ant. Coil	360522-9	19-1002		4606	2 Microhenries
L11	AM RF Coil	360348-2			A-5495-RF	
L12	AM Osc. Coil	360407-2	14-1033			
L13	1st. FM IF	360626-1	16-3487	FM-254	1463	
L14	1st. AM IF	360611-1	16-6758	BC-352	12-C1	
L15	2nd. FM IF	360626-1	16-3487	FM-254	1463	
L16	2nd. AM IF	360625-1	16-6770	BC-355	12-C6	
L17	Ratio Det.	360627-1	17-3498	FM-255	1465	
L18	10KC Filter	360621-1				

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA SENTINEL PART No.	SYLVANIA PART No.	NOTES
M1	1N34A	530030-2	1N34A	Audio Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	SENTINEL PART No.	NOTES
M2	Dial Light	180161-17	#1847
M3	Dial Light	180161-17	#1847
M4	Pilot Light	180161-17	#1847
M5	Tuning Cap.	260136-1	6 Gang (AM Section: 41-545MMF Ant., 18-540MMF RF, 22-215MMF Osc.)
M6	Switch	160264-1	Function Selector
	Dial Pointer	102448-2	
	Dial Glass	150423-2	

SILVERTONE MODELS 7020, 7021, 7022 (Ch. 528.46600)

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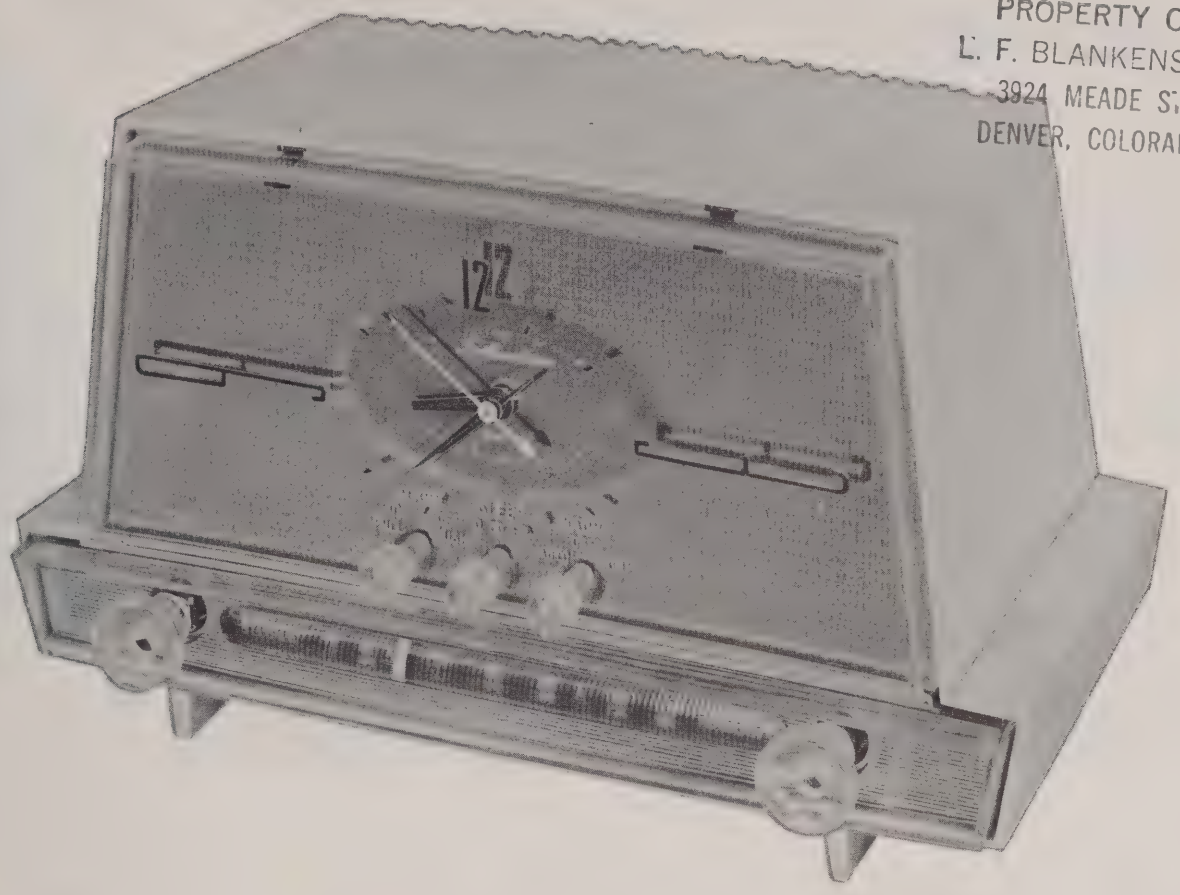
DENVER, COLORADO

SILVERTONE MODELS
7020, 7021, 7022 (Ch. 528.46600)



SILVERTONE MODELS
7020, 7021, 7022 (Ch. 528.46600)

TRADE NAME	Silvertone Models 7020, 7021, 7022 (Ch. 528.46600)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan, Chicago, Ill.
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycles — RATING .33 Amp. @ 117 Volts AC (30 Watts With Clock)
TUNING RANGE—BROADCAST	535KC - 1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1630KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12AT6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	18-22-2	PRS150V3050	BBRD5315	TCD497	TDLD-8	FMD-301	TVA-2450
B	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.05	400	16-50343	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C3	47		15-470168							
C4	5000		15-50217	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	
C5	.047	400	20-447-1	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C6	.05	400	16-50343	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	24-238	AB-744	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	

RESISTORS

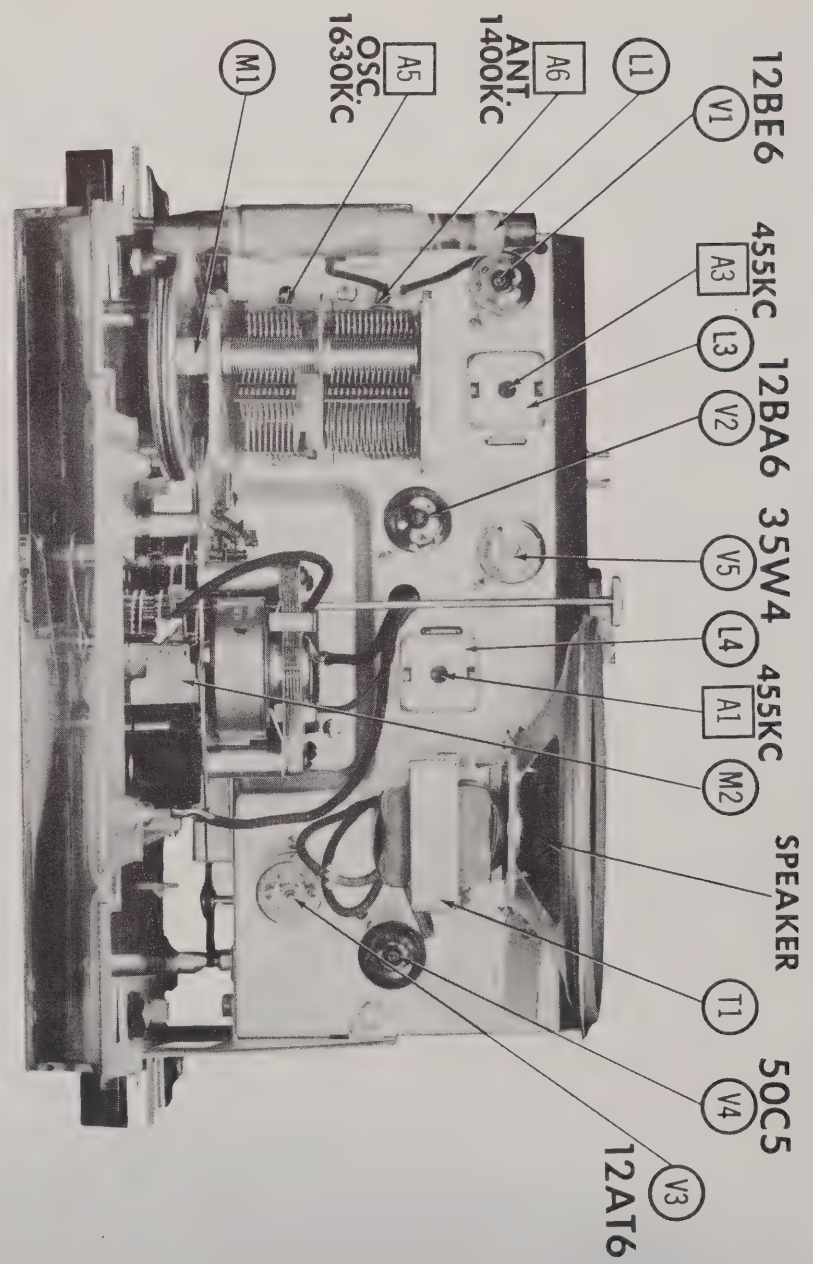
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	22K		60-22302	BTS-22K	
R3	47Ω		60-47001	BTS-47	
R4	2.2Meg		60-22502	BTS-2.2Meg	
R5	47K		60-47302	BTS-47K	
R6	120Ω	1	60-12101	BTS-120	
R7	1000Ω		60-10211	BTA-1000	
R8	27Ω		60-27001	BTS-27	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2000Ω tapped	3-4Ω	80-374	Z1102 ①	A-3031 ①	A-3330 ①	24S50A ①	S-16X ①	① Bend mtg. feet down.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	79-465①	4A07	① Includes T1.

COILS (RF-IF)

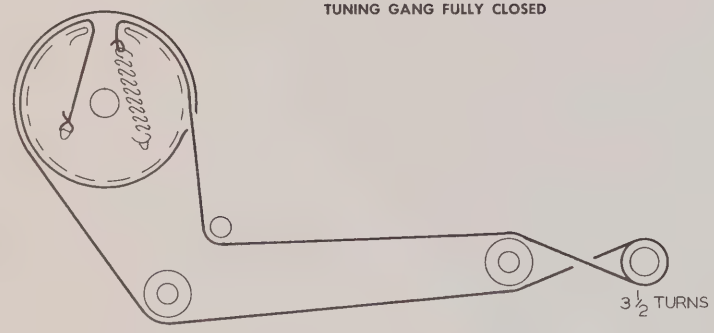
ITEM No.	USE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	82-104				
L2	Osc. Coil	10-1-4	14-1074			
L3	Input IF	10-42-2	16-6758	BC-352	12-C1	
L4	Output IF	10-41-2	16-6758	BC-353	12-C2	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA	
K1	Det. -Audio Net.	5000MMF, 5000MMF, 250MMF, 220MMF, 470K, 470K, 10Meg	13-10-3	Centralab Sprague	PC-159 DT-6

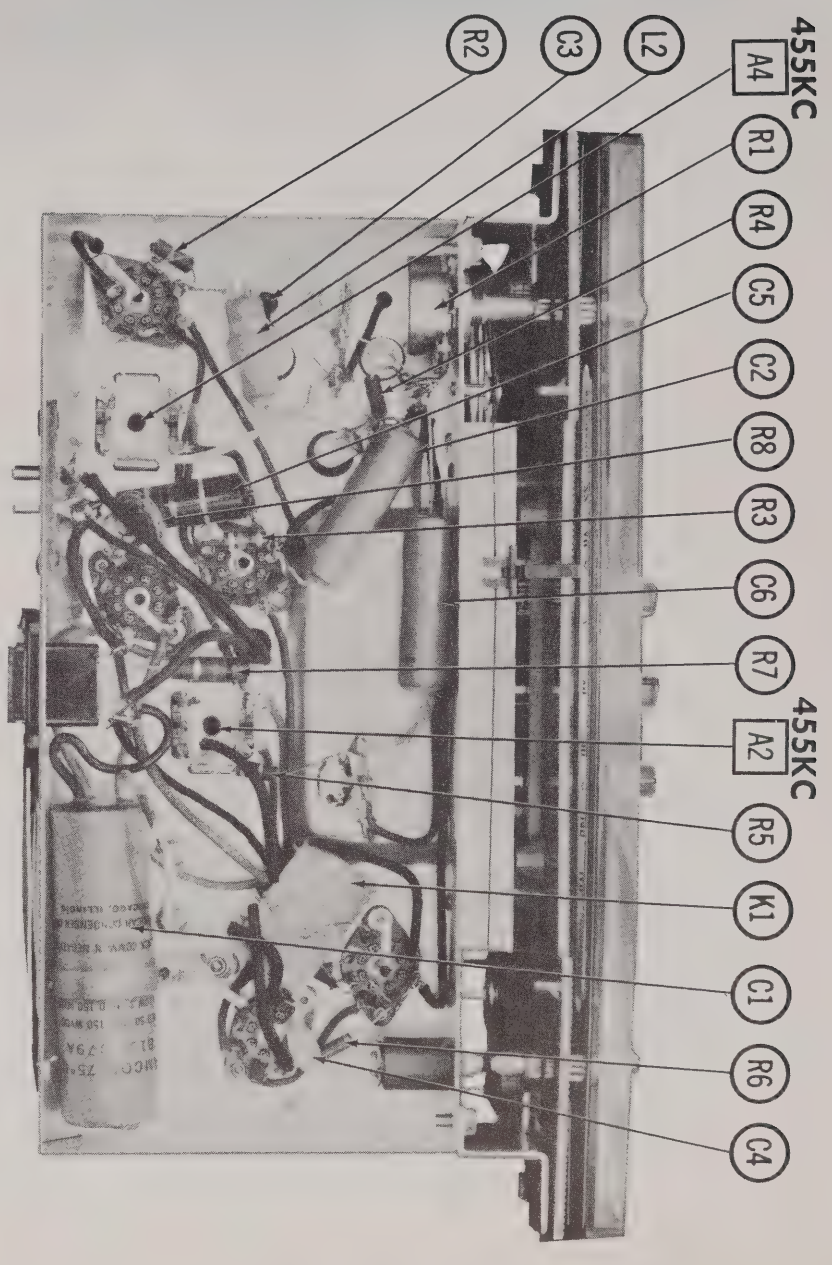
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	Tuning Cap.	19-44-2	Two Gang (37-499MMF, 34-197MMF)
M2	Clock	59-51	
	Clock Crystal	48-123	
	Knob	52-691	Clock, Alarm, Radio Control
	Knob	52-692	Volume, Tuning
	Cabinet	42-844	Brown, Model 7020
	Cabinet	42-845	Ivory, Model 7021
	Cabinet	42-919	Aqua, Model 7022
	Cabinet	40-307	Front

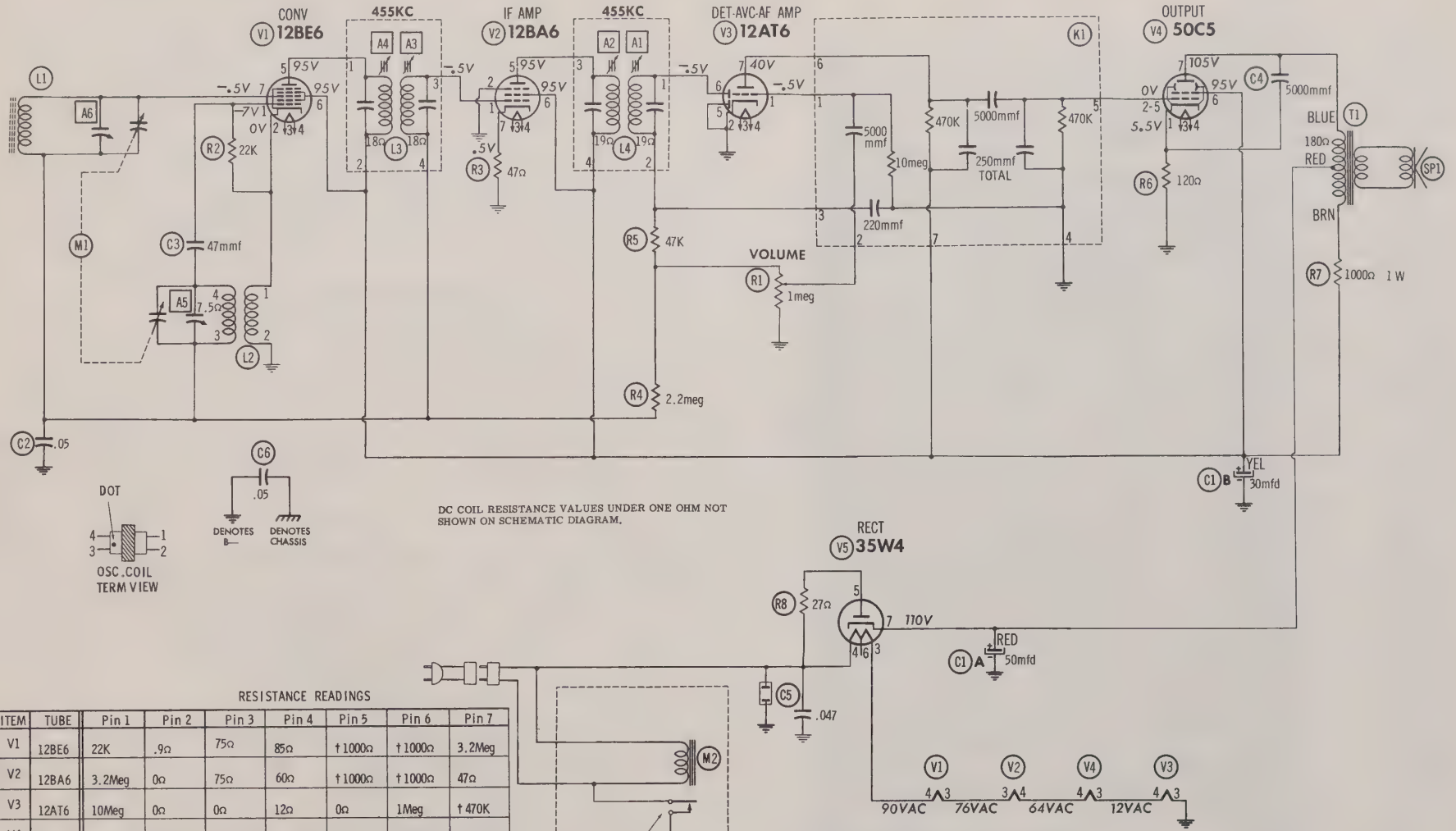


DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



SILVERTONE
MODEL 7020 (Ch. 528, 46600)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.9Ω	75Ω	85Ω	†1000Ω	†1000Ω	3.2Meg
V2	12BA6	3.2Meg	0Ω	75Ω	60Ω	†1000Ω	†1000Ω	47Ω
V3	12AT6	10Meg	0Ω	0Ω	12Ω	0Ω	1Meg	†470K
V4	50C5	120Ω	470K	12Ω	60Ω	470K	†1000Ω	†180Ω
V5	35W4	TP	TP	85Ω	120Ω	150Ω	115Ω	20K

† MEASURED FROM PIN 7 OF V5.
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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SONORA
MODELS 544, 622, 623, 624

SONORA
MODELS 544, 622, 623, 624

TRADE NAME	Sonora Model 544, 622, 623, 624
MANUFACTURER	Sonora Radio & Tel. Corp., 325 N. Hoyne Ave., Chicago, Ill.
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .28 Amp. @ 117 Volts AC (27 Watts)
TUNING RANGE—BROADCAST	535KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna stator lug on tuning gang. Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SONORA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	R-1781	PRS150V5030	BBRD5315	TCD497	TDLD-8	FMD-301	TVA-2450
B	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SONORA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200	R-1462	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C3	.047	200	R-1462	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C4	10000		N-9062	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C5	10000		N-9062	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	.047	200	R-1462	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SONORA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	R-1780	B-70 ①	A47-1Meg-Z①	Q13-137 ①	U53	Volume, 47K Stop
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

① Use 47K resistor in series with right hand terminal, viewed from shaft end, terminals down.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

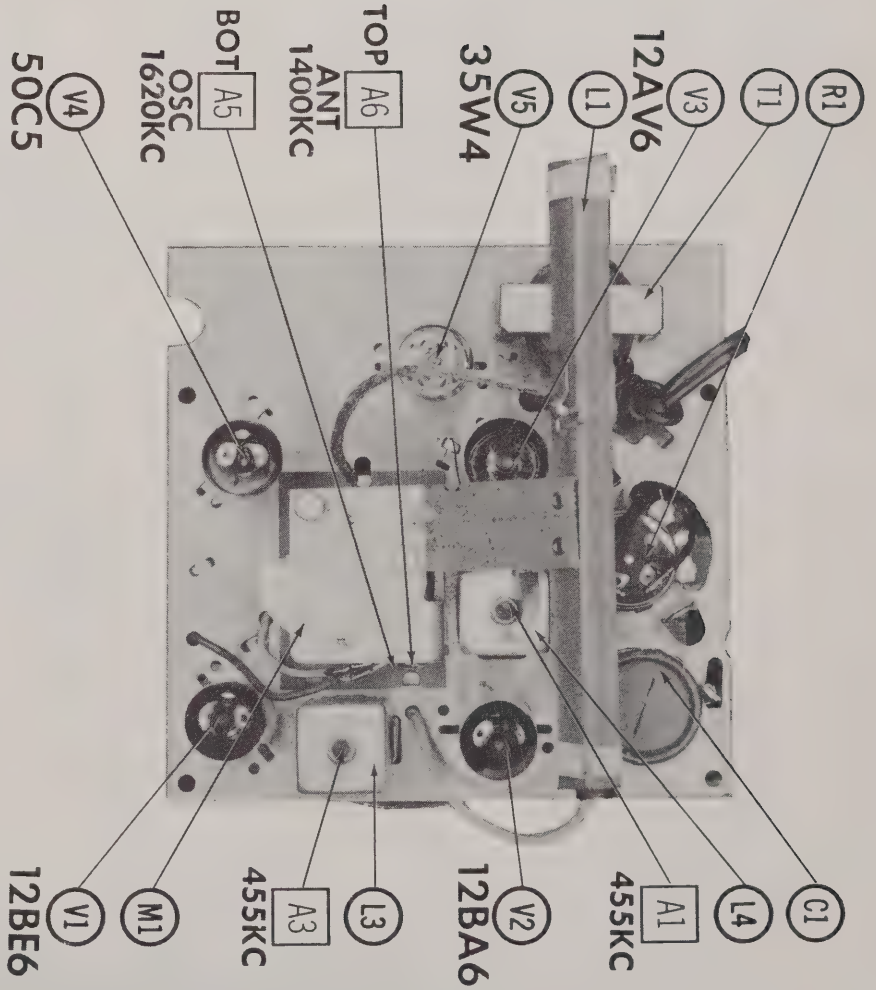
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SONORA PART No.	IRC PART No.	
R2	22K		N-4025	BTS-22K	
R3	1Meg		N-1262	BTS-1Meg	
R4	180Ω		N-4067	BTS-180	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SONORA PART No.	IRC PART No.	
R5	180Ω		N-4067	BTS-180	
R6	22Ω		N-4633	BTS-22	
R7	1200Ω	1	N-4900	BTA-1200	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SONORA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3400Ω	3-4Ω	R-1480	Z1101 ①	A-3025①	A-3332 ①	26S58②	S-12X ①	① Bend ears down. ② Use original channel mtg. frame.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SONORA PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	R-1478	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SONORA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	R-1776				
L2	Osc. Coil	R-1777				
L3	Input IF	R-1237*	16-6758	BC-352	12-C1	
L4	Output IF	R-1237*	16-6758	BC-353	12-C2	

* Alternate part #R-1234.

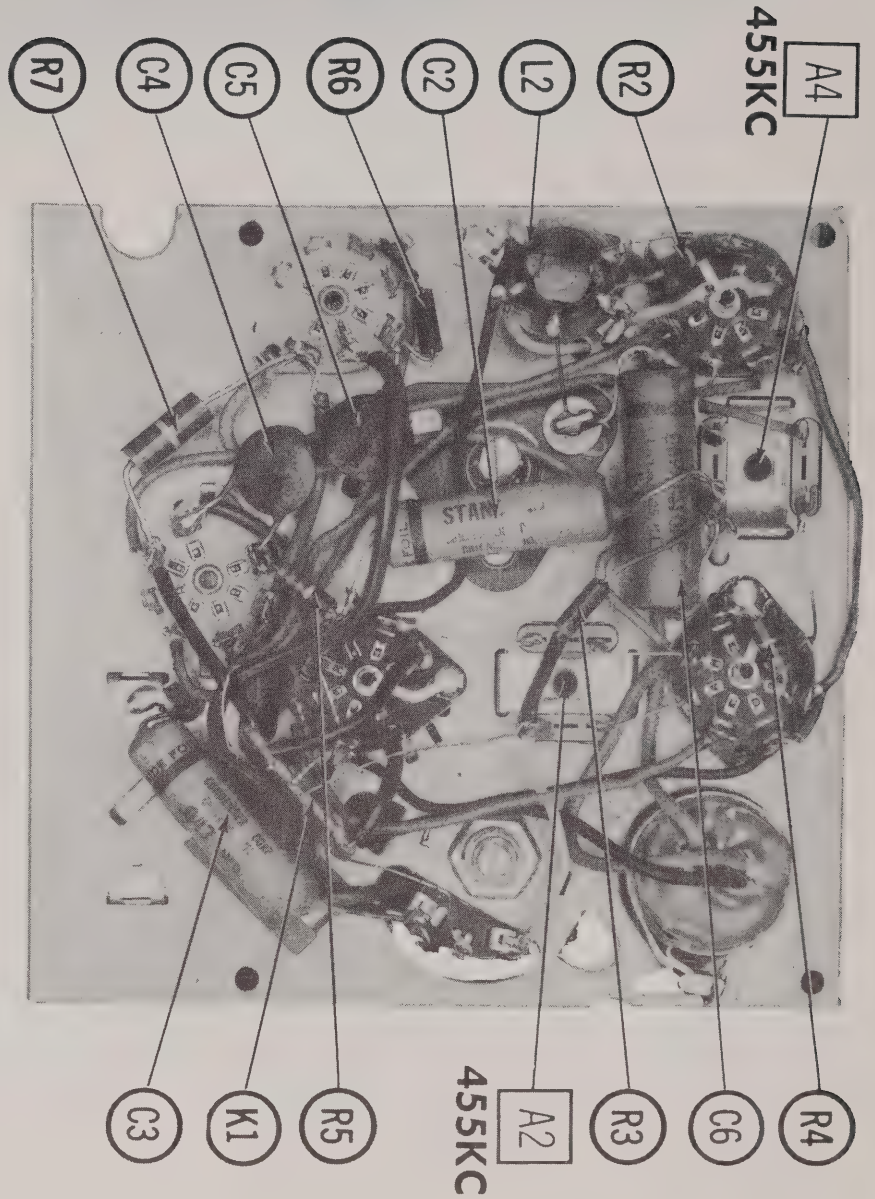
COMPONENT COMBINATIONS

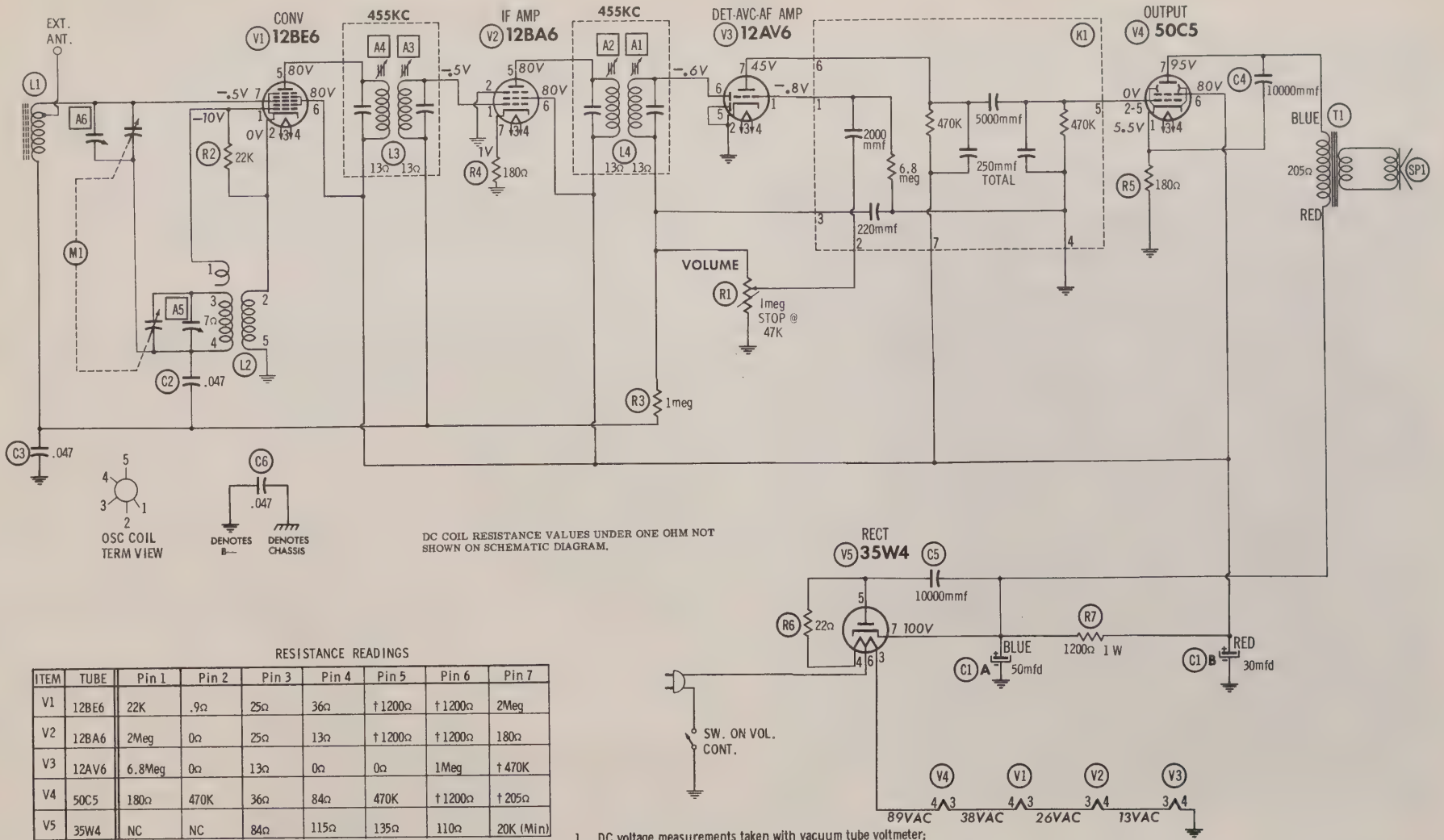
ITEM No.	USE	DESCRIPTION	SONORA PART No.	REPLACEMENT DATA	
K1	Det. -Audio Net.	2000MMF, 5000MMF, 220MMF, 250MMF, 6. 8Meg, 470K, 470K	R-1487	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-113-1 PC-150 116TM1 1408-01 DT-5

MISCELLANEOUS

ITEM No.	PART NAME	SONORA PART No.	NOTES
M1	Tuning Cap.	R-1779	Two Gang (15-258MMF, 27-125MMF)

CHASSIS—BOTTOM VIEW





DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.9Ω	25Ω	36Ω	†1200Ω	†1200Ω	2Meg
V2	12BA6	2Meg	0Ω	25Ω	13Ω	†1200Ω	†1200Ω	180Ω
V3	12AV6	6.8Meg	0Ω	13Ω	0Ω	0Ω	1Meg	†470K
V4	50C5	180Ω	470K	36Ω	84Ω	470K	†1200Ω	†205Ω
V5	35W4	NC	NC	84Ω	115Ω	135Ω	110Ω	20K (Min)

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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SPARTAN CHASSIS
CMUA458CB, CTA458CB

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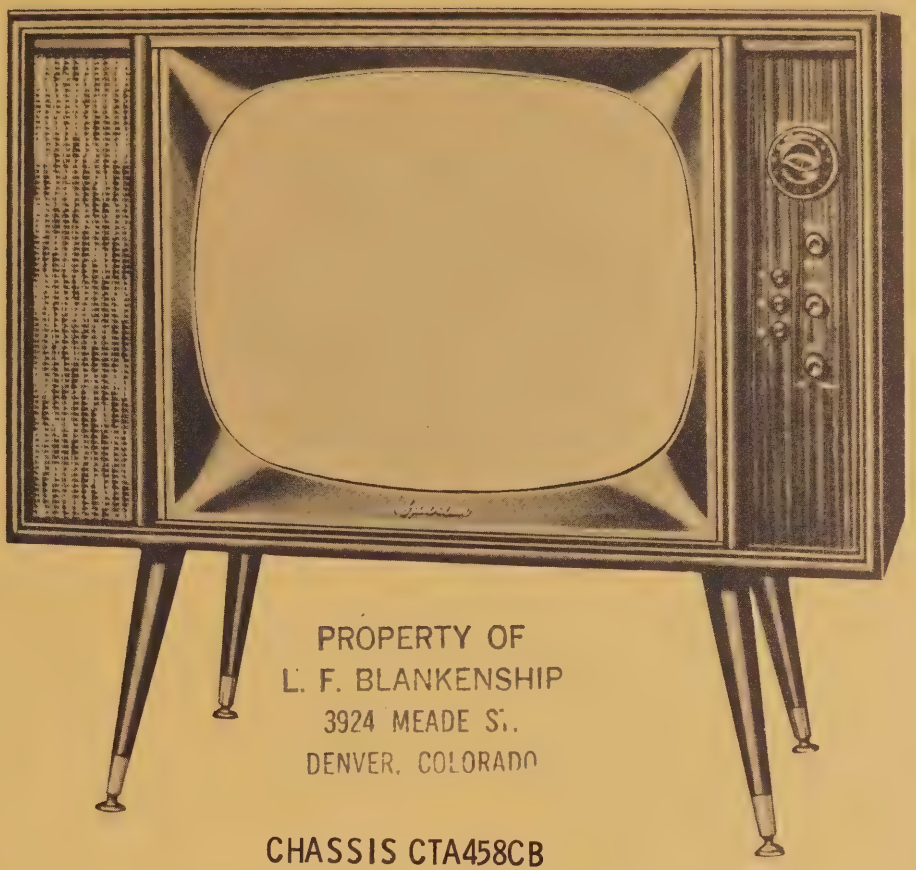

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DENVER, COLORADO

CHASSIS CTA458CB

TRADE NAME	Spartan Chassis CMUA458CB, CTA458CB
MANUFACTURER	Spartan Div., The Magnavox Company, Fort Wayne 4, Indiana
TYPE SET	Television Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 200 Watts, 1.8 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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SPARTAN CHASSIS
CMUA458CB, CTA458CB

RETMA MEMBER

SPARTAN CHASSIS CMUA458CB, CTA458CB

Chassis

CMUA458CB, CTA458CB

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SPARTAN CHASSIS
CMUA458CB, CTA458CB

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. One slug for HIGH band adjustment is located at 11 o'clock and should be adjusted first. The LOW band adjustment is located at 6 o'clock. Adjust for best picture and sound.

FOCUS

The focus may be varied in steps by the position of a plug in the focus adjustment board. Readjust the Ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horiz. freq. slug (B1) until the picture synchronizes horizontally. (For location see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A11) located on top of chassis.

FUSES

One fuse is used for horiz. sweep circuit protection. (For location see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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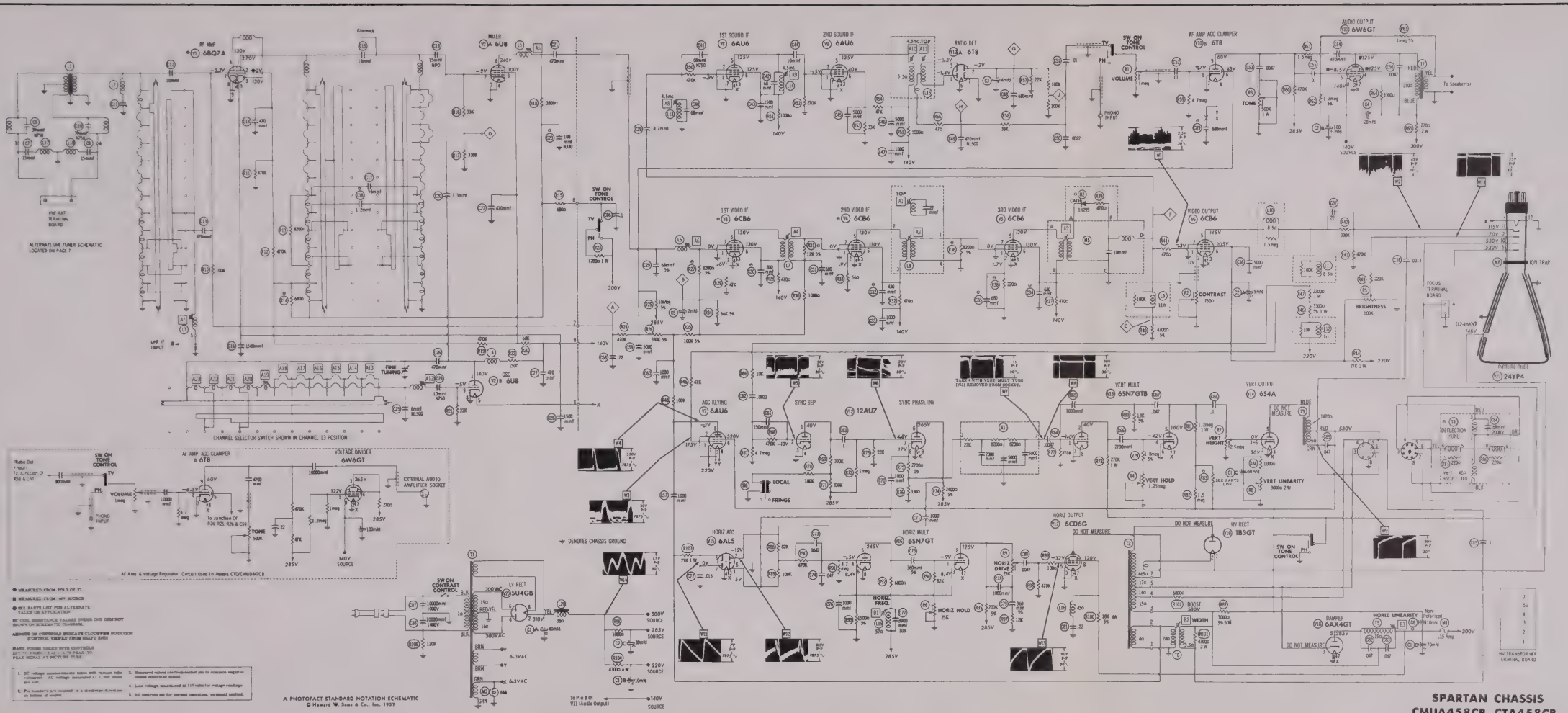
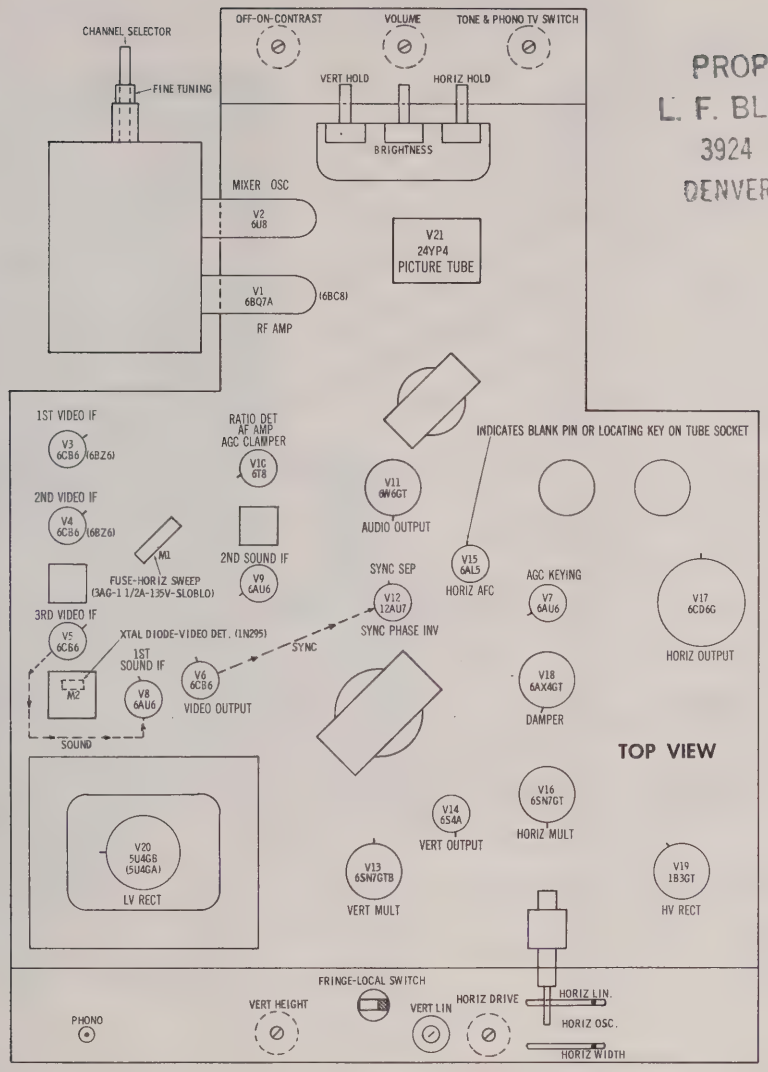
G868R

DATE 6-57 SET 361 FOLDER 13


SPARTAN CHASSIS
CMUA458CB, CTA458CB
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957
DENOTES CHASSIS GROUND
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
ALTERNATE UHF TUNER SCHEMATIC LOCATED ON PAGE 7
RF AMP 6BQ7A
MIXER 6U8
OSC 6U8
1ST SOUND IF 6AU6
2ND SOUND IF 6AU6
RATIO DET 6T8
AF AMP AGC CLAMPER 6T8
AUDIO OUTPUT 6W6GT
1ST VIDEO IF 6CB6
2ND VIDEO IF 6CB6
3RD VIDEO IF 6CB6
VIDEO OUTPUT 6CB6
AGC KEYING 6AU6
SYNC SEP 12AU7
SYNC PHASE INV
VERT MULT 6SN7GTB
VERT OUTPUT 6S4A
HORIZ AFC 6AL5
HORIZ MULT 6SN7GT
HORIZ OUTPUT 6CD6G
HV RECT 1B3GT
DAMPER 6AX4GT
LV RECT 5U4GB
PICTURE TUBE 24YP4
SW ON TONE CONTROL
SW ON CONTRAST CONTROL
VOLUME
TONE
CONTRAST
BRIGHTNESS
VERT HOLD
VERT HEIGHT
VERT LINEARITY
HORIZ FREQ
HORIZ HOLD
HORIZ DRIVE
WIDTH
BOOST
HORIZ LINEARITY
FOCUS TERMINAL BOARD
ION TRAP
DEFLECTION YOKE
DO NOT MEASURE
AF Amp & Voltage Regulator Circuit Used In Models CTQ/CHUD462CB
EXTERNAL AUDIO AMPLIFIER SOCKET
To Speakers
To Pin 8 Of V11 (Audio Output)
HV TRANSFORMER TERMINAL BOARD

TUBE PLACEMENT CHART



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DENVER, COLORADO

TUBE FAILURE CHECK CHART

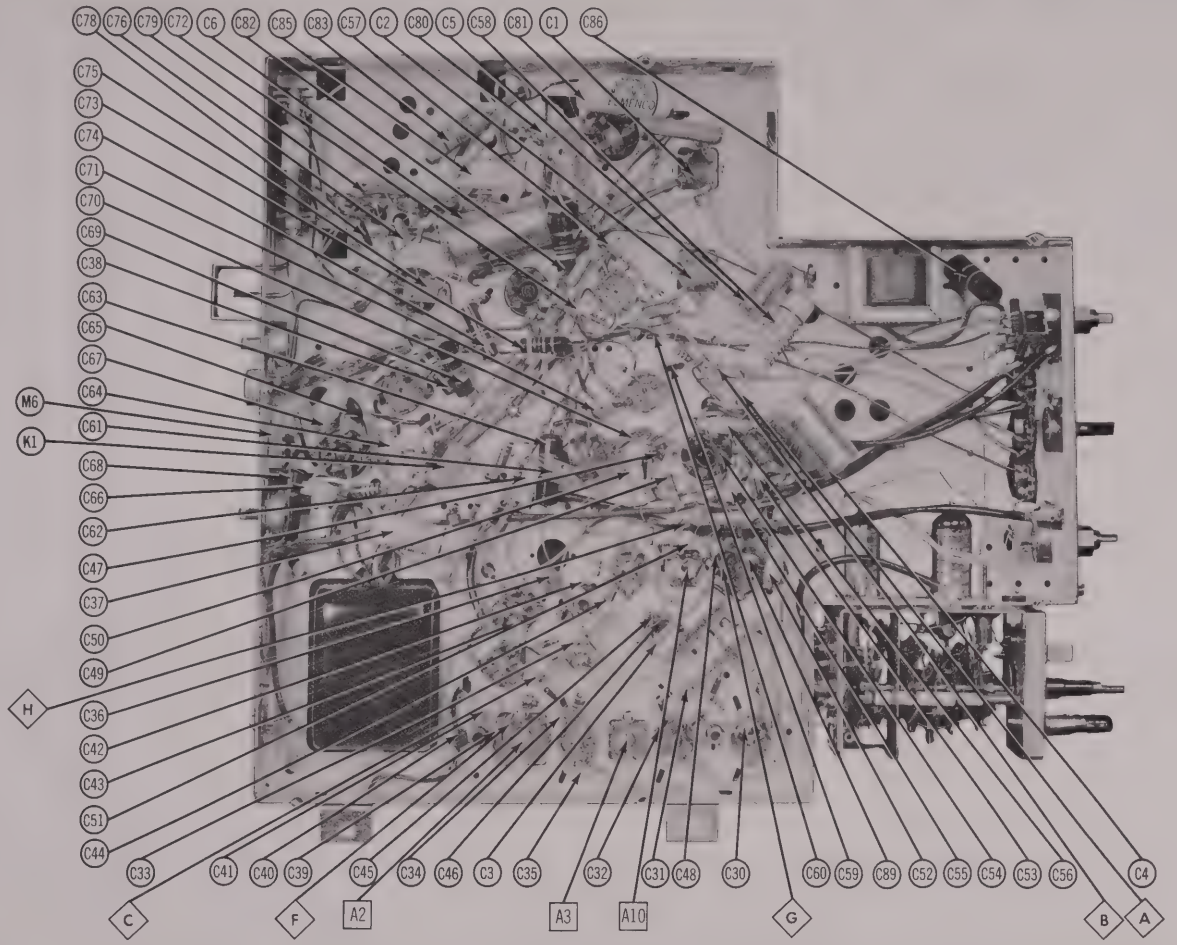
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V20**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M2), V7, V11**
No pic, no sound, has snow - **V1, V2, V3, V10, V11**
No pic, has sound, has raster - **V6, V21**
Has pic, no sound - **V8, V9, V10, V11**
Overloaded picture - **V7**

SYNC FAILURE
No vert. sync - **V12**
No horiz. sync - **V12, V15**
No vert. or horiz. sync - **V12**

SWEEP FAILURE
No raster, has sound - **V15, V16, V17, V18, V19, V21, Fuse (M1)**
No vertical deflection - **V13, V14**
Poor vert. linearity or foldover - **V13, V14**
Poor horiz. linearity or foldover - **V16, V17, V18**
Narrow picture - **V16, V17, V18, V20**
Vert. off freq. - **V13**
Horiz. off freq. - **V15, V16**



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓐ and the negative lead of a 1.5 volt bias supply to point Ⓑ.
Connect the positive leads to chassis.
In step 1 it is possible to obtain two settings at which the marker will be in correct position, use the one with the slug farthest counter clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to pin 1 (grid) of 6BZ6 (V3). Low side to chassis.	43.0MC (10MC Swp)	47.25MC (400∿ 30% AM Mod)	Any unused high band channel	Vert. Amp. thru 10K to point Ⓒ. Low side to chassis.	A1	Couple a second generator to point Ⓓ to provide markers. Adjust to center 47.25MC markers in trap notch as in Fig. 1. Use enough sweep output so that trap notch is visible on scope.
2.	"	"	"	42.75MC 45.0MC 45.75MC 47.25MC	"	"	A2, A3, A4	Attenuate sweep generator output for 2 volts peak to peak on the scope. Adjust for response similar to Fig. 2. Adjust A2 for maximum gain and MINIMUM tilt. A3 positions 45.75MC marker. A4 positions 42.75MC marker. Recheck A1 adjustment for correct 47.25MC position. See Fig. 1.
3.		High side to point Ⓓ. Low side to chassis.	"	"	"	"	A5, A6	Adjust A5 for maximum gain and place 45.75MC marker at 50% on response curve as in Fig. 2. Adjust A6 for maximum amplitude and correct tilt. Repeat adjustment of A5 and A6 (if necessary) several times to obtain response within limits. (See Fig. 2).
4.	"	"	213MC (10MC Swp)	"	13	"		Couple marker generator loosely to pin 1 (grid) of 6BZ6 (V3). Check for response similar to Fig. 2 on all VHF channels. Response should be within limits shown by dotted lines. If necessary, repeat steps 1 thru 4.
			207MC (10MC Swp)		12			
			201MC (10MC Swp)		11			
			195MC (10MC Swp)		10			
			189MC (10MC Swp)		9			
			183MC (10MC Swp)		8			
			177MC (10MC Swp)		7			
			85MC (10MC Swp)		6			
			79MC (10MC Swp)		5			
			69MC (10MC Swp)		4			
			63MC (10MC Swp)		3			
			57MC (10MC Swp)		2			
5.	1000Ω Carbon Resistor	High side to point Ⓔ. Low side to chassis.	43MC (10MC Swp)	45.75MC	UHF		A7	Turn tuner to UHF position. Adjust A7 for MINIMUM tilt with 45.75MC marker on high frequenc slope of curve as in Fig. 2.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point Ⓖ to chassis. The junction of these two resistors is alignment point Ⓙ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.005MFD	High side to point Ⓕ. Low side to chassis.	4.5MC (Unmod)	Any unused channel	DC probe thru 100K to point Ⓖ. Common to chassis.	A8, A9, A10	Adjust for maximum deflection. Keep signal low enough to obtain 6½ to 7 volts on VTVM.
7.	"	"	"	"	DC probe thru 100K to point Ⓗ. Common to point Ⓙ.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

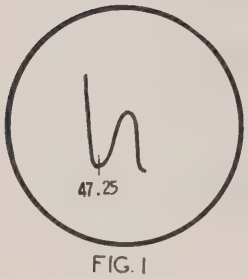


FIG. 1

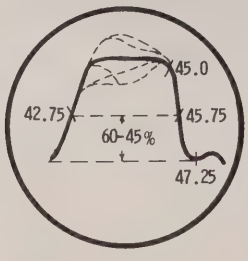


FIG. 2

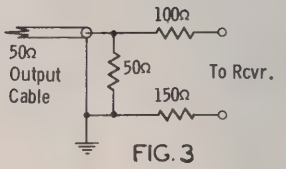


FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

VHF OSCILLATOR ALIGNMENT

Loosely couple an RF signal generator to the grid of the first Video IF Amplifier tube (V3) and tune it accurately to 45.75MC.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the center of its range.
Use only enough sweep generator output to provide usable pattern on scope.

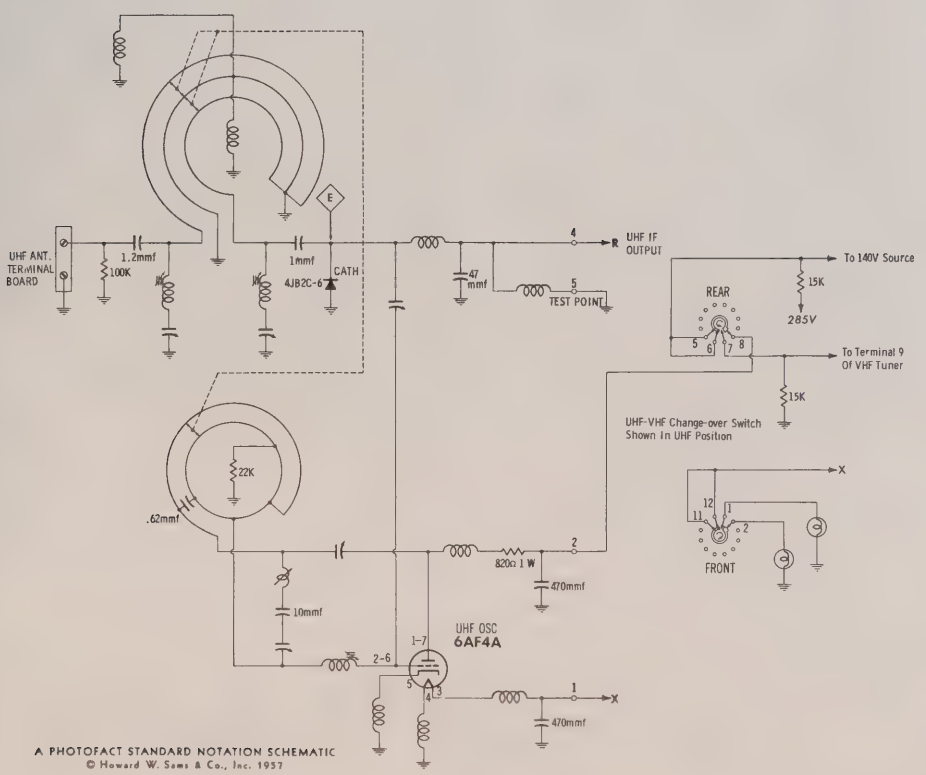
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Fig. 3	Thru matching network (Fig. 3) to antenna terminals.	213MC (10MC Swp)	211.25MC 45.75MC	13	Vert. Amp. thru 10K to point Ⓒ. Low side to chassis.	A12	Adjust so that video RF and video IF markers coincide on response curve.
9.	"	"	207MC (10MC Swp)	205.25MC 45.75MC	12	"	A13	Adjust position of loops so that video RF and video IF markers coincide on response curve.
			201MC (10MC Swp)	199.25MC 45.75MC	11		A14	
			295MC (10MC Swp)	193.25MC 45.75MC	10		A15	
			289MC (10MC Swp)	187.25MC 45.75MC	9		A16	
			283MC (10MC Swp)	181.25MC 45.75MC	8		A17	
			277MC (10MC Swp)	175.25MC 45.75MC	7		A18	
10.	"	"	85MC (10MC Swp)	83.25MC 45.75MC	6		A19	(Same as step 8.)
11.	"	"	79MC (10MC Swp)	77.25MC 45.75MC	5		A20	Adjust (compress or expand coil turns) so that video RF and video IF markers coincide on response curve.
			69MC (10MC Swp)	67.25MC 45.75MC	4		A21	
			63MC (10MC Swp)	61.25MC 45.75MC	3		A22	
			57MC (10MC Swp)	55.25MC 45.75MC	2		A23	

RF AND MIXER ALIGNMENT

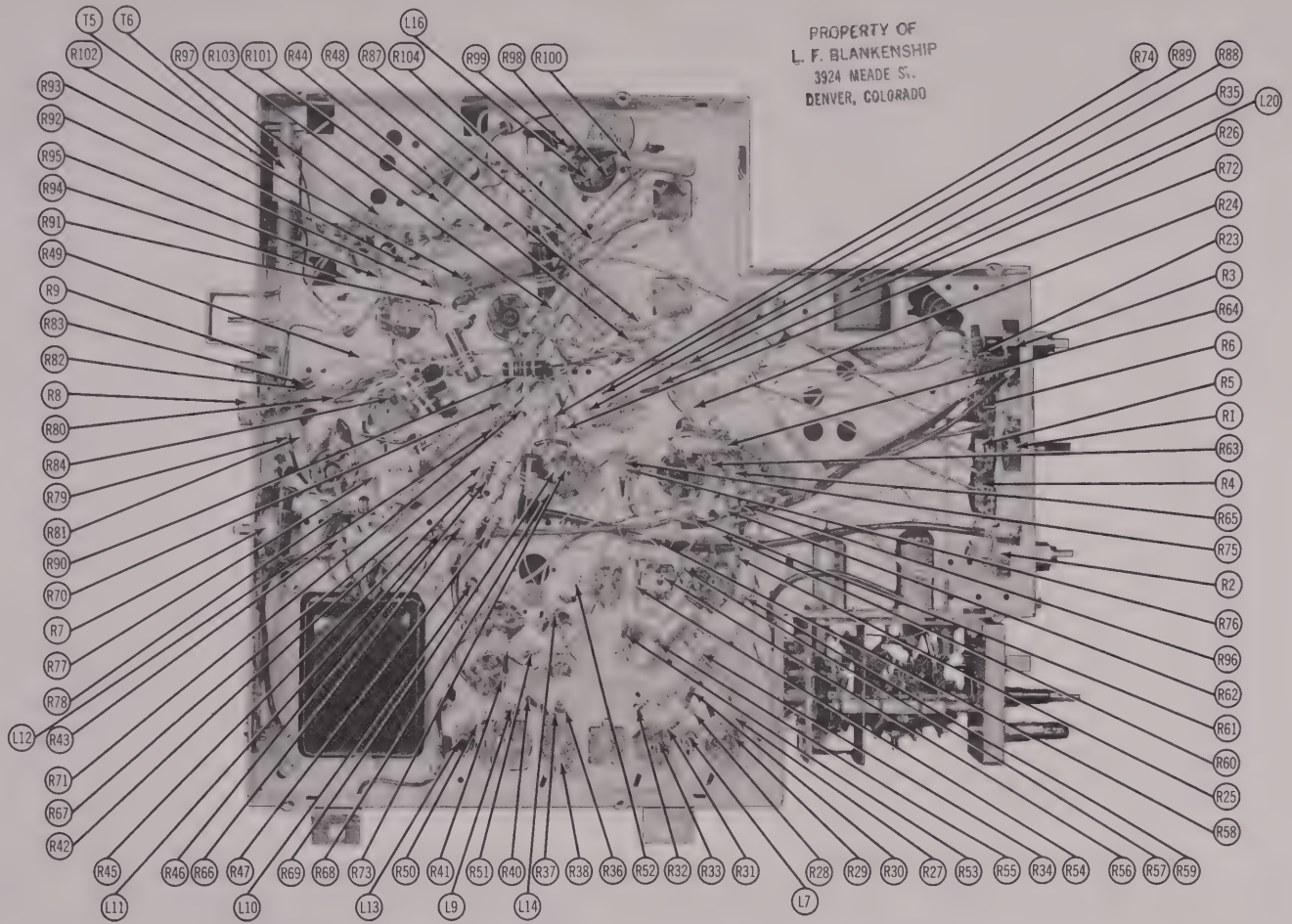
This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.



ALTERNATE UHF TUNER SCHEMATIC



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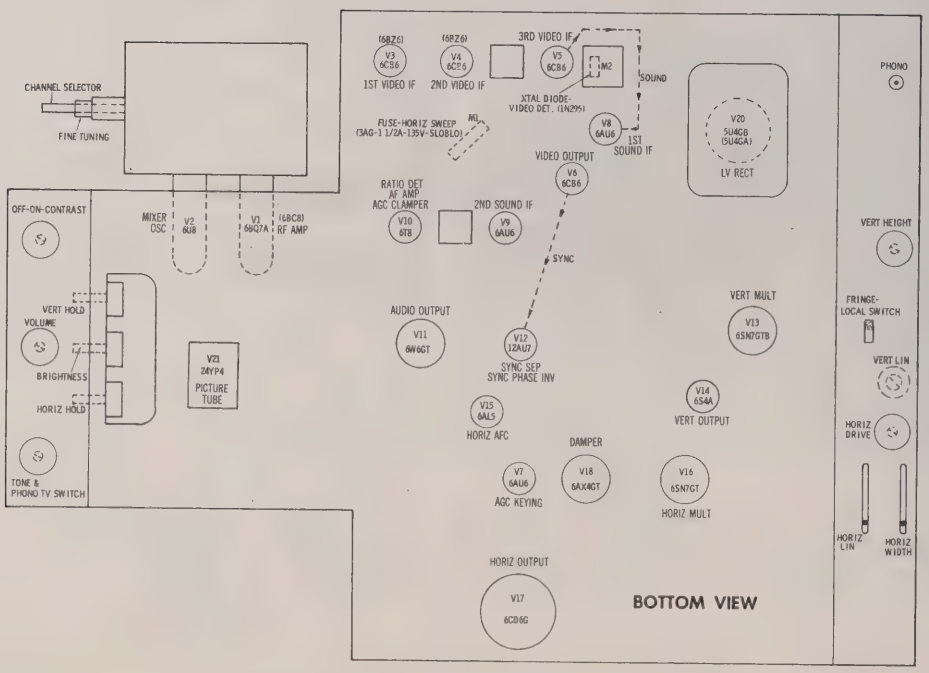
CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	†1700Ω	†240K	INF	0Ω	.1Ω	INF	930K	0Ω	0Ω
V2	6U8	■150Ω	360K	■68K	0Ω	.1Ω	†4000Ω	0Ω	0Ω	22K
V3	6CB6	65K	47Ω	.1Ω	0Ω	■ 470Ω	■ 470Ω	0Ω		
V4	6CB6	57K	56Ω	.1Ω	0Ω	■ 470Ω	■ 470Ω	0Ω		
V5	6CB6	.1Ω	220Ω	.1Ω	0Ω	■ 470Ω	■ 470Ω	0Ω		
V6	6CB6	5100Ω	●10Ω	.1Ω	0Ω	†10K	†30K	0Ω		
V7	6AU6	†55K	†4300Ω	†4300Ω	†4300Ω	250K	‡3000Ω	†4300Ω		
V8	6AU6	470K	0Ω	.1Ω	0Ω	■1000Ω	■1000Ω	0Ω		
V9	6AU6	270K	0Ω	.1Ω	0Ω	■1000Ω	■ 47K	0Ω		
V10	6T8	INF	22K	INF	.1Ω	0Ω	440K	0Ω	4.7Meg	†470K
V11	6W6GT	TP	0Ω	†530Ω	†3600Ω	500K	TP	.1Ω	¶	
V12	12AU7	†450K	5Meg	0Ω	0Ω	0Ω	†3400Ω	22K	3000Ω	.1Ω
V13	6SN7GTB	470K	‡270K	0Ω	●2Meg	‡1.7Meg	0Ω	.1Ω	0Ω	
V14	6S4A	NC	●2000Ω	● 1.7Meg	.1Ω	0Ω	●1.7Meg	NC	NC	
V15	6AL5	5.2Meg	5.2Meg	.1Ω	0Ω	27K	0Ω	27K		
V16	6SN7GT	● 90K	†200K	1500Ω	4.7Meg	†6800Ω	1500Ω	.1Ω	0Ω	
V17	6CD6G	NC	0Ω	0Ω	TP	470K	TP	.1Ω	†18K	TOP CAP ‡16Ω
V18	6AX4GT	TP	NC	4.5Meg	NC	†65Ω	TP	.1Ω	0Ω	
V19	1B3GT		PINS	1 THRU 8	HAVE	INF	RESISTANCE			TOP CAP ‡483Ω
V20	5U4GB	NC	¶	NC	19Ω	NC	16Ω	NC	¶	
V21	24YP4	.1Ω	230K	PIN 6 ‡3000Ω	PIN 10 ‡3000Ω	PIN 11 240K	PIN 12 0Ω			

■ MEASURED FROM 140V SOURCE.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 2 OF V20.
‡ MEASURED FROM PIN 3 OF V18.
NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART

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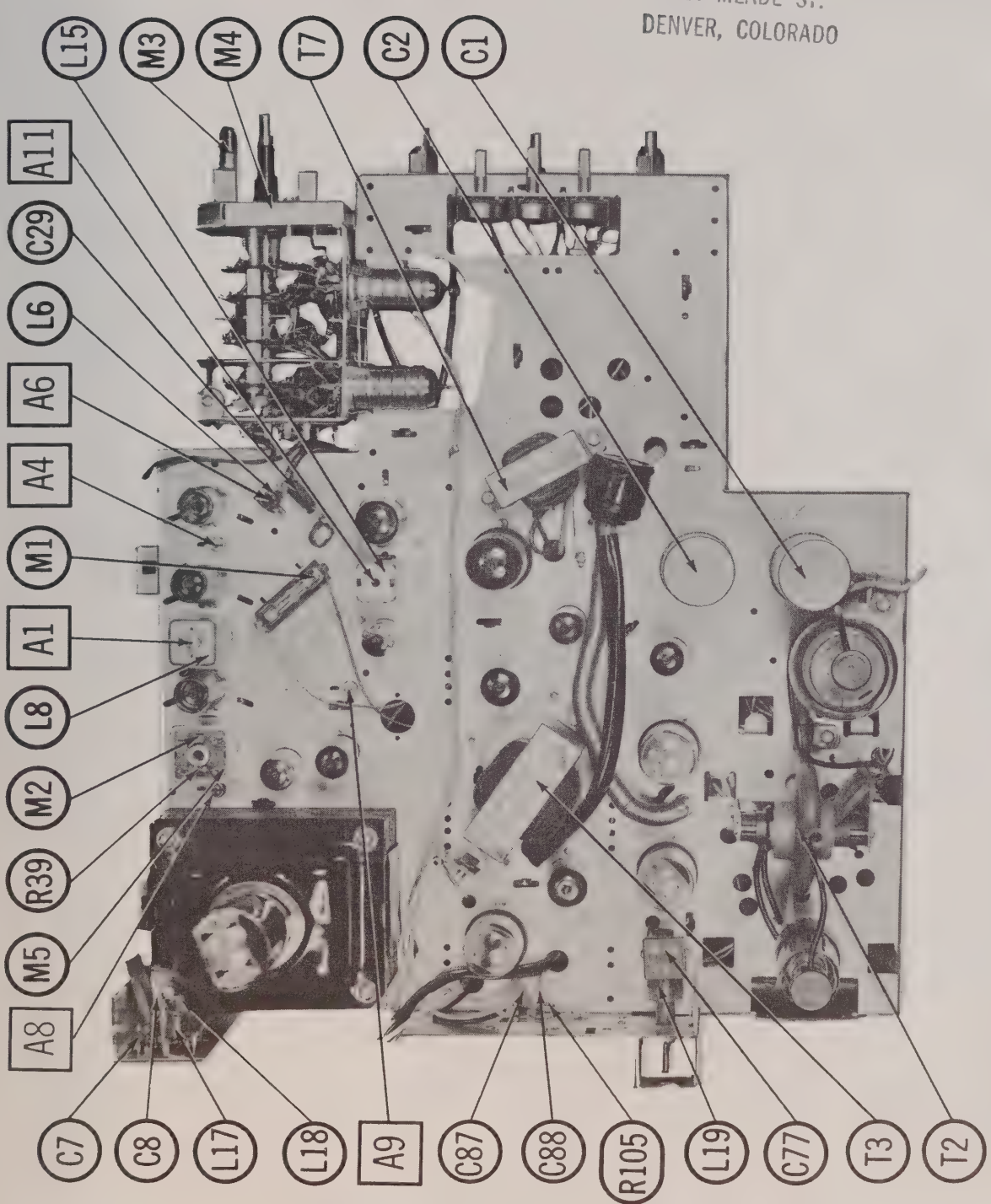


CHASSIS TOP VIEW

SPARTAN CHASSIS
CMUA458CB, CTA458CB

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6DQ7A	Note 1
V2	Mixer-Oscillator	6L8	
V3	1st Video IF Amplifier	6CB6	Note 2
V4	2nd Video IF Amplifier	6CB6	Note 2
V5	3rd Video IF Amplifier	6CB6	
V6	Video Output	6CB6	
V7	Age Keying	6AU8	
V8	1st Sound IF Amplifier	6AU8	
V9	2nd Sound IF Amplifier	6AU8	
V10	Ratio Det.-AF Amp - AGC Clamper	6T8	

ITEM No.	USE	TYPE	NOTES
V11	Audio Output	6W6GT	
V12	Sync Sep -Sync Phase Inv	12AU7	
V13	Vert Mult	6BN7A/B	
V14	Vert Output	6S4A	
V15	Horiz. AFC	6AL5	
V16	Horiz. Mult	6BN7A/B	
V17	Horiz. Output	6L6GC	
V18	Damper	6AX4GT	
V19	HV Rectifier	1B3GT	
V20	LV Rectifier	5U4GB	

Note 1. Some versions may use a 6BC8 in this application.
Note 2. Some versions may use a 6BZ6 in this application.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: SPARTAN PART No	CBS PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	NOTES
V21	24YP4		24YP4 ①	24YP4 ①	① Silver screen "B"
				24DP4A ①	② Aluminized
				24DP4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: SPARTAN PART No	AEROVOX PART No.	CORNELL-DUBILIER PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	350	250Q2-52	RE100	CGS70	FP375.5	C-926	TVL-4831
B	40	350			CRE100	TC62	MT-0550	
C	50	50						
D	70	350						
C2A	40	350	27002I-55	AFH3-114-70		FP389.1	T-602	R2348 *
B	400	200				TC90	MT 4530	
C	50	350						
C3	4	350	27003T-10	SRE50V5	BBR4-50	TC50	TD-4-50	MMT-0505
C4	20	350	27002T-20	PRS450V20	BR3035	TC60	TD-20-350	FM-4520
C5	30	350	27003T-32	PRS50V2	BBR2-50	TC202	TD-2-50	MT-0532
C6	10	350	27003T-26 (Note 1)	WP-PRS350	CR3035 †	SCC5 †		MT-4530 †
				YHP10	CBR3035 †	SCC65 †		MT-4520 †

Note 1. Non polarized unit
† Connect negative -ends together
* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: SPARTAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C7	15		30307-84	HI 15	DS-150	LTSQ5	GP-15	UC-5415	SGA-Q5	
C8	25		30307-94	HI 25	DS-250	LTSQ5	GP-25	UC-5425	SGA-Q5	
C9	38		30475-30	MPG-01 39	TCH-39	CSQG39U	TCT-39			N750
C10	38		30475-30	MPG-01 39	TCH-39	CSQG39U	TCT-39			N750
C11	56		30568-6							
C13	10		30432L-127	MPG-01 10	DD-100	L10Q3	ED-10	UC-541	SGA-Q	
C14	470		30475-78	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C15	470		30475-78	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C16	1500		30475-20	BPD-0015	DD-152	BYA5X15	ED-1500	DC5315	5HK-D15	
C17	1.5		30432L-111		TCZ-4.5T		TCC-.5			
C18	1.5			MPG-01 1	TCZ-1.5		TCC-1.5	STCCB-V1	Note 2	
C19	15		30307-5	MPG-01 15	TCZ-15	CSQG5C	TCC-15	STCC-Q5	NP0	
C20	3.3		30432L-131	PRS50V3.3	CDV33C	TCC-3.3	STCC-P33	STCCD-V33		
C21	470		30475-78	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C22	470		30475-78	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C23	100						TCH-100			Note 3
C24	10		25000L-128	MTSC-H 10	TCH-10	C10QU	TCT-10	NT-541	STCU-Q	N750
C25	6		30568-127							N1500
C26	470		30475-78	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C27	470		30475-78	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C28	1500		30475-10	BPD-0015	DD-152	BYA10D15	ED-1500	DC5315	5HK-D15	
C29	68		30459-1043	1469-00068		1R5T68			36G-68	
C30	68		30459-54	BPD-0006	DD-601	L10T68			SGA-T68	Note 4
C31	680		30525-6	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68	
C32	470		30525-41			L10T42				Note 5
C33	1000		30475-14	BPD-001	DD-102	BYA5D1	ED-1000	DC531	5HK-D1	
C34	680		30525-4	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68	Note 5
C35	680		30525-4	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68	Note 6
C36	5000		25017S-1	BPD-005	DD-502	BYA10D5	ED-005	DC535	5HK-D5	
C37	5000	300	25017S-32	PSBN-32		CUB2F32		GEM-3032	5TM-D32	
C38	.0022	600	25302L-4	BPD-0033	D6-332	BYA5D33	ED-0033	GEM-6333	6TM-D33	
C39	4.7		30432L-123	MPG-01 4.7	TCZ-4.7	CSQV47C	TCC-4.7	ST-4547	STCCD-V47	
C40	68		30525-7	BPD-00068	DD-680	L10Q68	ED-68	UC-5468	SGA-Q68	
C41	56		30525-22	NTSO-SS 68	TCH-68	CSQG68U	TCT-68		STCU-Q68	N750
C42	68		30525-7	BPD-00068	DD-680	L10Q68	ED-680	UC-5468	SGA-Q68	
C43	1500		30525-15	BPD-0015	DD-152	BYA10D15	ED-1500	DC5315	5HK-D15	
C44	50		30307-3	GP-10	DS-500	L10Q5	GP-50	UC-541	SGA-Q5	
C45	5000		25017S-1	BPD-005	DD-502	BYA10D5	ED-005	DC535	5HK-D5	
C46	5000		25017S-1	BPD-005	DD-502	BYA10D5	ED-005	DC535	5HK-D5	
C47	1000		25017S-14	BPD-01	DD-102	BYA5D1	ED-1000	DC531	5HK-D1	
C48	680		30525-6	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68	
C49	470		25006S-117							N1500
C50	.0022	600	25302L-3	BPD-0022	D6-322	CUB4D22	ED-0022	GEM-4322	4TM-D22	
C51	.01	400	25302L-7	BPD-01	DD-103	CUB4E1	ED-01	GEM-41	4TM-S1	
C52	.01	400	25302L-7	BPD-01	DD-103	CUB4E1	ED-01	GEM-41	4TM-S1	
C53	.0047	400	25302L-5	BPD-0047	D-472	CUB4D47	ED-0047	GEM-4347	4TM-D47	
C54	470		25302L-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C55	.01	400	25302L-7	BPD-01	DD-103	BYA5E1	ED-01	GEM-41	4TM-S1	
C56	.0047	600	25302L-5	BPD-0047	D-472	BYA5D47	ED-0047	GEM-6347	6TM-D47	
C57	1000		25302L-8	BPD-001	DD-102	BYA5D1	ED-1000	DC531	5HK-D1	
C58	5000	300	25302S-25	PSBN-32		CUB2F32		GEM-3032	5TM-P32	
C59	5000		25017S-1	BPD-005	DD-502	BYA10D5	ED-005	DC531	5HK-D5	
C60	5000		25017S-14	BPD-005	DD-502	BYA10D5	ED-005	DC531	5HK-D5	
C61	68	600	25302L-1	1469-00068		1R5T68			36G-68	
C62	680		30525-4	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68	Note 7
C63	680		30525-4	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68	Note 8
C64	1000		25017S-8	BPD-001	DD-102	BYA5D1	ED-1000	DC531	5HK-D1	
C65	1000		25017S-8	BPD-001	DD-102	BYA5D1	ED-1000	DC531	5HK-D1	
C66	1000		25017S-8	BPD-001	DD-102	BYA5D1	ED-1000	DC531	5HK-D1	
C67	1000		25017S-8	BPD-001	DD-102	BYA5D1	ED-1000	DC531	5HK-D1	
C68	400		25017S-1	BPD-01	DD-103	CUB4E1	ED-01	GEM-41	4TM-S1	
C69	047	400	25021I-13	P488N-1		DIF-104	CUB4P1	GEM-401	4TM-P1	
C69	047	400	25021I-13	BPD-06		DIF-503	CUB4D47	GEM-4147	4TM-S47	
C70	1000		25021S-9	BPD-001	DD-103	BYA5D1	ED-1000	DC531	5HK-D1	
C71	1000		25021S-8	BPD-001	DD-103	BYA5D1	ED-1000	DC531	5HK-D1	
C72	015	200	25021J-4	BPD-015	DD-153	BYA5D15	ED-1500	DC5315	5HK-D15	
C73	.0047	400	25021J-4	BPD-0047	DD-472	CUB4D47	GEM-4347	4TM-D47		
C74	.0047	400	25021J-5	BPD-0047	DF-502	CUB4S47	GEM-4347	4TM-S47		
C75	150		25015S-1060	5469-00036		SRT25R			33G	
C76	1000		25021S-8	BPD-001	DD-103	BYA5D1	ED-1000	DC531	5HK-D1	
C77	3900		25018I-1041	1467-0039		1R3G39			MS-339	
C78	1000		25021S-8	BPD-001	DD-103	BYA5D1	ED-1000	DC531	5HK-D1	
C79	150		25015S-1050	5469-00036		SRT25R			MS-336	
C80	0047	400	25021I-5	BPD-0047	DD-473	CUB4D47	ED-0047	GEM-4347	4TM-D47	
C81	400		25021I-15	P488N-22		CUB4P22		GEM-4022	4TM-P22	
C82	047	400	25021I-11	BPD-06	DF-503	CUB4D47		GEM-4147	4TM-S47	
C83	047	400	25021I-11	BPD-06	DF-503	CUB4S47		GEM-4147	4TM-S47	
C84	68	2000		DD30-68	D2G0-680	BYA5Q68	HZ8-68	DC3568	20GA-Q68	
C85	1	500	25021J-13	P488N-1		DIF-104	CUB5P1	GEM-501	5TM-P1	
C86	1	400	25021J-13	P488N-1		DIF-104	CUB4P1	GEM-401	4TM-P1	
C87	10000	1000	25021P-2	P1088N-01		DD-103	BYA10S1	GEM-6310	6TM-S1	
C88	10000	1000	25021P-2	P1088N-01		DD-103	BYA10S1	GEM-1041	10TM-S1	
C89	680			BPD-00068	DD-681		BYA10D68	ED-680	UC-5368	SGA-T68 Note 7

Note 2. Some versions may use a 1. 8mMF in this application.
N ote 3. Some versions may use a 470MMF in this application.
Note 4 Some versions may use a 680MMF in this application.
Note 5. Some versions may use an 800MMF in this application.
Note 6. Some versions may use a 1000MMF in this application.
Note 7. Not used in some versions.

CAPACITORS (cont)

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: SPARTAN PART No	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C90	047	400	25021I-13	P488N-1		DIF-104	CUB4P1	GEM-401	4TM-P1	
C91	047	400	25021I-13	BPD-06		DIF-503	CUB4D47	GEM-4147	4TM-S47	
C92	1000		25021S-9	BPD-001	DD-103	BYA5D1	ED-1000	DC531	5HK-D1	
C93	1000		25021S-8	BPD-001	DD-103	BYA5D1	ED-1000	DC531	5HK-D1	
C94	015	200	25021J-4	BPD-015	DD-153	BYA5D15	ED-1500	DC5315	5HK-D15	
C95	.0047	400	25021J-4	BPD-0047	DD-473	CUB4D47	ED-0047	GEM-4347	4TM-D47	
C96	047	400	25021I-5	BPD-0047	DF-502	CUB4S47	GEM-4347	4TM-S47		
C97	047	400	25021I-11	BPD-06	DF-503	CUB4S47		GEM-4147	4TM-S47	
C98	047	400	25021I-11	BPD-06	DF-503	CUB4S47		GEM-4147	4TM-S47	
C99	047	400	25021I-11	BPD-06	DF-503	BYA5Q5S	HZ8-68	DC3568	20GA-Q68	
C100	1	500	25021J-13	P488N-1		DIF-104	CUB5P1	GEM-501	5TM-P1	
C101	1	400	25021J-13	P488N-1		DIF-104	CUB4P1	GEM-401	4TM-P1	
C102	10000	1000	25021P-2	P1088N-01		DD-103	BYA10S1	GEM-6310	6TM-S1	
C103	10000	1000	25021P-2	P1088N-01		DD-103	BYA10S1	GEM-1041	10TM-S1	
C104	680			BPD-00068	DD-681		BYA10D68	ED-680	UC-5368	SGA-T68 Note 7

Note 2. Some versions may use a 1. 8mMF in this application.
N ote 3. Some versions may use a 470MMF in this application.
Note 4 Some versions may use a 680MMF in this application.
Note 5. Some versions may use an 800MMF in this application.
Note 6. Some versions may use a 1000MMF in this application.
Note 7. Not used in some versions.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: SPARTAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	23023S-25	B-70	A47-1Meg-2	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	750Ω	½	23023S-38	AB-415	A47-750-S	Q17-101	U3	Contrast
B	Shaft			AK-3	FS-3	Not Req.	Not Req.	
C	Switch			K3-1	SWS-12	T6-1	U8-36	
R3A	500K	1	23023T-3					Tone
B	Switch							Phono-TV
R4A	1 Meg	½	23023S-3	AB-743	A47-1.5Meg-G	Q11-158	U155	Vert. Hold
B	Shaft			AK-3*	FS-3*	VQ*	Not Req. *	
R5A	100K	½	23021S-12	AB-40	A47-100K-S	Q11-128	U41	Brightness
B	Shaft			AK-3*	FS-3*	VQ*	Not Req. *	
R6A	25K	½	23023S-6	AB-26	A47-25K-S	Q11-120	U29	Horiz. Hold
B	Shaft			AK-3*	FS-3*	VQ*	Not Req. *	
R7A	1. 5Meg	½	23024S-2	AB-83	A47-2.5Meg-G	Q11-139	U155	Vert. Height
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R8	3000Ω	3	23012G-3		39-5000		FL-4K	Vert. Lin. (Wire-wound)
R9A	2.5K	3	23014S-1	AB-26	A47-2.5K-S	Q11-130	U29	Horiz. Drive
B	Shaft				FKS-1/4	RQ	Not Req.	

* File replacement shaft to be double flat.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: SPARTAN PART No.	IRC PART No.	NOTES
R10	100K		23010A-86	BTS-100K	
R11	470K		23010A-94	BTS-470K	
R12	470K		23010A-94	BTS-470K	
R13	8200Ω		23010A-73	BTS-8200	
R14	680Ω		23010A-70	BTS-680	
R15	680Ω		23010A-80	BTS-680	
R16	33K		23010A-62	BTS-33K	
R17	330K		23010A-93	BTS-330K	
R18	3300Ω		23010A-74	BTS-3300	
R19	470K		23010A-94	BTS-470K	
R20	68K		23010A-84	BTS-68K	
R21	22K		23010A-76	BTS-22K	
R22	150Ω		23010A-52	BTS-150	
R23	1200Ω	1	23010A-53	BTA-1200	
R24	470K		23010A-94	BTS-470K	
R25	10Meg 5%		23010A-255	BTS-10Meg 5%	
R26	330K 5%		23010A-93		
R27	8200Ω 5%		23010A-73	BTS-8200 5%	Note 2
R28	470Ω		23010A-58	BTS-470	
R29	47Ω		23010A-46	BTS-47	
R30	1000Ω		23010A-54		
R31	15K 5%		23010A-251		Note 3
R32	470Ω		23010A-58	BTS-470	
R33	56Ω		23010A-48	BTS-56	
R34	56K 5%		23009A-301	BTS-56K 5%	
R35	100K 5%		23009A-307	BTS-100K 5%	
R36	82000 5%			BTS-8200 5%	Note 2
R37	470Ω		23010A-58	BTS-470	
R38	220Ω			BTS-220	Note 4
R39	470Ω		23010A-58	BTS-470	
R40	47000 5%		23009A-178		
R41	470Ω		23010A-58		
R42	330K		23010A-93	BTS-330K	
R43	470K		23010A-94	BTS-470K	
R44	27K	1	23010S-79	BTA-27K	
R45	47K		23010A-78	BTS-47K	
R46	33000 5%	1	23009S-171		
R47	2200Ω		23010A-56	BTA-2200	
R48	100K		23010A-86	BTS-100K	
R49	330K		23010A-93	BTS-330K	
R50	470K		23010A-94	BTS-470K	
R51	1000Ω		23010A-62	BTS-1000	
R52	270Ω		23010A-51	BTS-270K	
R53	33K		23010A-80	BTS-33K	
R54	47K		23010A-83	BTS-47K	
R55	1000Ω		23010A-62	BTS-1000	
R56	47Ω		23010A-46	BTS-47	
R57	22K		23010A-78	BTS-22K	

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: SPARTAN PART No.	IRC PART No.	NOTES
R58	33K		23010A-80	BTS-33K	
R59	4. 7Meg		23010A-108	BTS-4. 7Meg	
R60	470K		23010A-94	BTS-470K	
R61	1. 5Meg		23010A-100	BTS-1. 5Meg	
R62	1. 2Meg 5%		23009A-323	BTS-1. 2Meg 5%	
R63	1Meg 5%		23009A-331	BTS-1Meg 5%	
R64	1500Ω		23010A-64	BTS-1500	
R65	270Ω	2	23010S-55	BTH-270	
R66	10K		23010A-74	BTS-10K	
R67	4. 7Meg		23010A-108	BTS-4. 7Meg	
R68	470K		23010A-94	BTS-470K	
R69	330K		23010A-93	BTS-330K	
R70	180K		23010A-89	BTS-180K	
R71	330K		23010A-93	BTS-330K	
R72	1Meg		23010A-98	BTS-1Meg	
R73	33K		23010A-79	BTS-33K	
R74	2400Ω 5%		23009A-188	BTS-2400 5%	
R75	27000 5%		23009A-189	BTS-2700 5%	
R76	53Ω		23010A-56	BTS-530	
R77	470K		23010A-94	BTS-470K	
R78	4700Ω	1	23010S-61	BTA-4700K	
R79	1. 5Meg 5%		23009A-337	BTS-1. 5Meg 5%	
R80	15K 5%		23009A-195	BTS-15K 5%	
R81	1. 2Meg	1	23010S-99	BTA-1. 2Meg	
R82	1. 5Meg		23010A-100	BTA-1. 5Meg	
R83			23013G-1		Note 5
R84	1000Ω		23010A-62	BTS-1000	
R85	220Ω				
R86	220Ω				
R87	30000 5%	5	24007I-40	1 3/4A-3000	
R88	33K		23010A-85		
R89	100K		23010A-86	BTS-100K	
R90	470K		23010A-94	BTS-470K	
R91	4. 7Meg		23010A-108		
R92	6800Ω		23010A-73		
R93	15000 5%		23009A-183	BTS-1500 5%	
R94	82K		23010A-85		
R95	200K 5%		23009A-214		
R96	1000Ω		23010A-62		
R97	15K		23010A-75	BTS-12K	
R98	470K		23010A-94	BTS-470K	
R99	100Ω		23010A-44	BTS-100	
R100	18K 5%	4	24007I-1		
R101	4700Ω	2	23010S-70	BTS-4700	
R102	6800Ω		23010A-73		
R103	27K	1	23010S-79	BTA-27K	
R104	4300Ω	4	24007I-1		
R105	120K		23010J-1	BTS-120K	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA: SPARTAN PART No	Halldorson PART No.	Merit PART No.	Stancor PART No	Thordorson PART No	Triad PART No
T1	117VAC	600VCT	5V	6. 3V	30007S-1		P-2828 ①	P-8333 ①	36R34 ①	
	② 1. 8A	③ 330A	④ 3A	& 2A						
				SEC 4						
				6. 3V						
				& 1. 2A						

① Parallel and phase 6. 3V ④ & 5. 6A fil. windings, taps 6. 3V ⑤ 3. 3A fil. winding.
② Drill new mounting holes, tape center tap on 5V fil. winding.
③ Parallel and phase 6. 3V ① & 1. 2A and 6. 3V ⑤ 1. 8A fil. winding.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: SPARTAN PART No	Halldorson PART No	Merit PART No	RCA TYPE No	Ram PART No	Stancor PART No	Thordorson PART No	Triad PART No
T2	Horiz Output Trans	28053J-1						HO279	
T3	Vert Output Trans	28025A-1	Z1808	A-3038	Z1871	V312	A-8141	28S54	A-104X
T4A	Yoke (90°) Horiz	28061T-1	DF807 ②	MDF-92 ②	2351 ②	Y90F19/43 ②	DY-16A ②	Y-16 ②	Y-41 ②
	(23MM)					2		2	
B	Vert (46MM)	28061T-2 ①	DF807 ②	MDF-92 ②	2351 ②	Y90F19/43 ②	DY-16A ②	Y-16 ②	Y-41 ②
						2		2	
T5	Linearity Coil	28063J-1	RF802 ③	MWC-5 ③	207R2 ③	20J85A ③	WC-6 ③	WC-16 ③	
	(2. 5 - 4. 2 MH)					2			
T6A	Width (Series Coil	28055S-1		MWC-10 ④				WC-24 ①	
	35-2 3MH)								
B	(Parallel Coil								
	4. 4-. 28 MH)								

① Alternate part number
② Use series grid-type damping network.
③ Drill new mounting hole.
④ Use original core and mounting bracket.
⑤ Use original mounting bracket.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: SPARTAN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
T7	3900Ω	3-4Ω	32006S-1	Z1200	A-3018	A-3849	28S50	S-4X ①	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	SPARTAN PART No.	NOTES
L1	Ant. Trans.	350490-2	
L2	RF Choke	350501-8	
L3	UHF IF Input Coil	350502-1	

ITEM No.	USE	SPARTAN PART No.	NOTES
L4	RF Choke	350501-9	
L5	Mixer Plate Coil	350503-1	

ITEM No.	USE	REPLACEMENT DATA: SPARTAN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L6	1st. Video IF	350540-1				
L7	2nd. Video IF	350541-1			17-4523	TV-130	6219	
L8	3rd. Video IF	350542-1			17-5003 *	TV-128 *	6233 *	Includes 47. 25MC Trap
L9	Shunt Peaking Coil	350623-7			19-4400 ▲		6136 ▲	400 Microhenries, wound on 100K resistor
L10	Series Peaking Coil	350443-30			19-3300 ▲	TV-185 ▲	6155 ▲	310 Microhenries, wound on 1. 5Meg resistor
L11	Shunt Peaking Coil	350443-31			19-3300 ▲	TV-185 ▲	6155 ▲	340 Microhenries, wound on 100K resistor
L12	Shunt Peaking Coil	350443-29			19-3250 ▲	TV-185 ▲	6181 ▲	240 Microhenries, wound on 10K resistor
L13	1st. Sound IF	350584-4			17-5400	TV-151	1469	
L14	2nd. Sound IF	350584-1			17-5400	TV-151	1469	
L15	Ratio Det.	350588-1			17-5497	TV-115	6306	Tertiary Winding -. 8Ω
L16	RF Choke	350610-1			19-1003		4606	3. 9 Microhenries
L17	IF Trap Coil	350630-1						
L18	IF Trap Coil	350630-2						

* Use adaptor plate.
▲ Parallel with 100K resistor
▲ Parallel with 10K resistor
▲ Parallel with 1. 5Meg resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	SEC.	REPLACEMENT DATA: SPARTAN PART No.	MEISSNER PART No.	MERIT PART No.	RCA TYPE No.	Ram PART No.	Thordorson PART No	NOTES
L19	57Ω		350578-1					HS-7 *	

* Drill new mounting hole.

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE @ CURRENT 1000 ᶜʸᶜˡᵉˢ	REPLACEMENT DATA: SPARTAN PART No.	Halldorson No.	Merit PART No.	Stancor PART No	Thordorson PART No	Triad PART No
L20	330A	36Ω	7H @ 75 MY	32006S-2	C504 ①	C-2994	C-3236 ①	26C41	C-34X

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SPARTAN PART No	REPLACEMENT DATA
K1	Vert. Integrator	3000MMF, 5000MMF, 5000MMF, 22K, 82000, 82000	25018S-1	Aerovox PA-10 Centralab 2000 Cornell-Dubilier 15TM1 Erie 1405-01 Sprague V-1

SPARTAN CHASSIS
CMUA458CB, CTA458CB

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SPARTAN PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	.15A * 125V S/B			313.150 (3AG .15A S/B 125V)	357001	MDL 15/100	4405

* Some versions may use a .2A in this application(Part #180157-23).

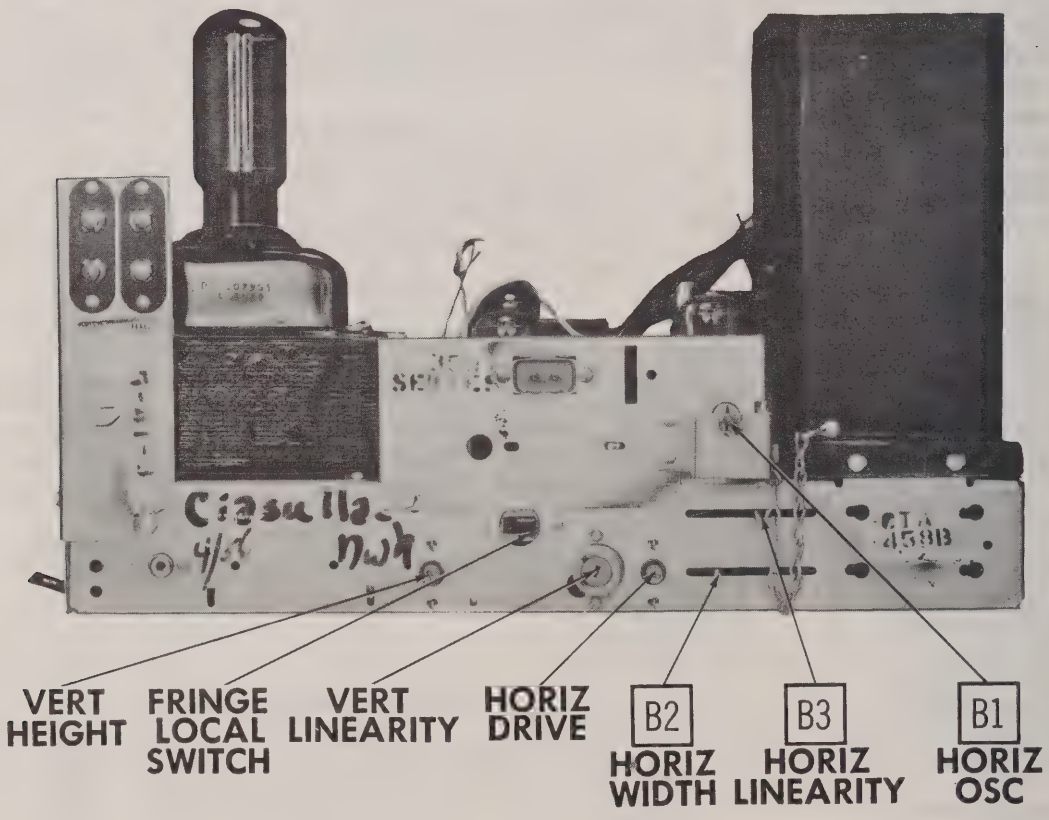
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		SPARTAN PART No.	SYLVANIA PART No.	
M2	1N295 *		1N60	Video Detector (Pigtail)

* A 1N64 may be used in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	SPARTAN PART No.	NOTES
M3	Dial Light		#44 Type
M4	Tuner	700458-3	VHF
	Tuner	700530-1	UHF, Used with VHF tuner #700458-3 in Ch. CMUA458BA, CB, CMUD447CB
M5	Crystal Det. Assy.	360607-1	Includes 4th. Video IF, Cap., Resistor, M2 and Series Peaking Coil
M6	Switch	160229-1	Fringe-local, Slide Type (DPDT)
M7	Centering Device	360618-1	
M8	Ion Trap	360492-5	



CHASSIS—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the horizontal hold control to its mid-range position.

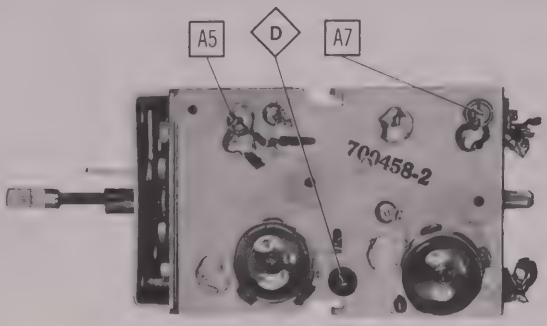
Turn the horizontal frequency slug (B1) slowly clockwise while switching off and on channel until the picture just loses sync. Turn B1 counter clockwise until picture just pulls into sync, then turn B1 an additional half turn counter clockwise.

The picture should hold sync at both extreme ends of the horizontal hold control. If necessary, readjust B1 SLIGHTLY and test for sync or pull-in as above.

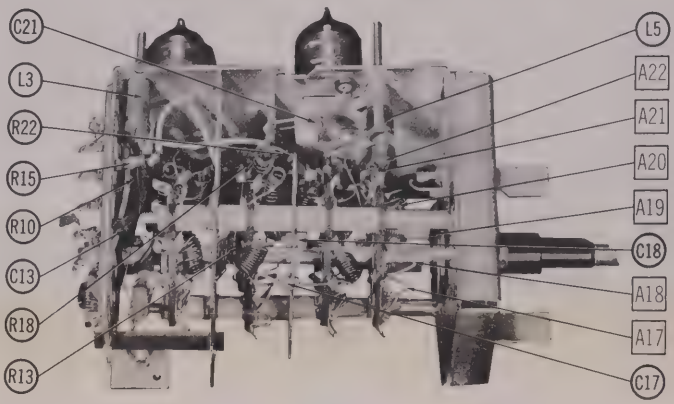
Adjust the horizontal drive control in a clockwise direction as far as possible without the presence of a vertical white line or compression near the center of the picture.

Adjust the width slug (B2) for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.

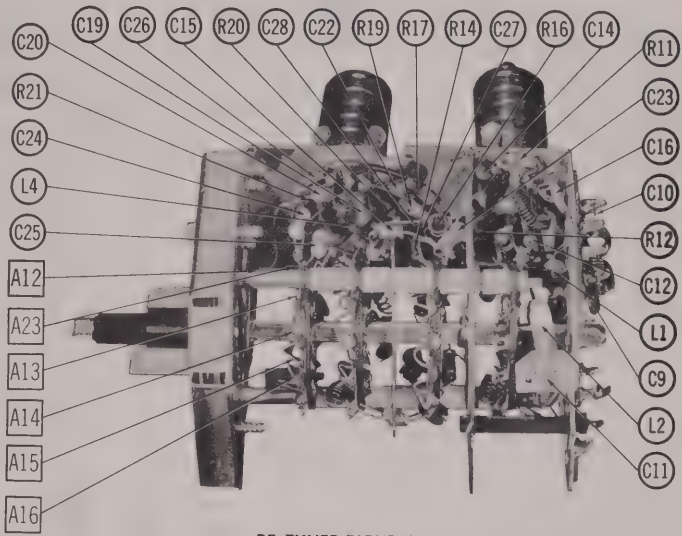
Adjust the horizontal linearity slug (B3) for a picture that is symmetrical from left to right.



RF TUNER-TOP VIEW



RF TUNER-LEFT SIDE



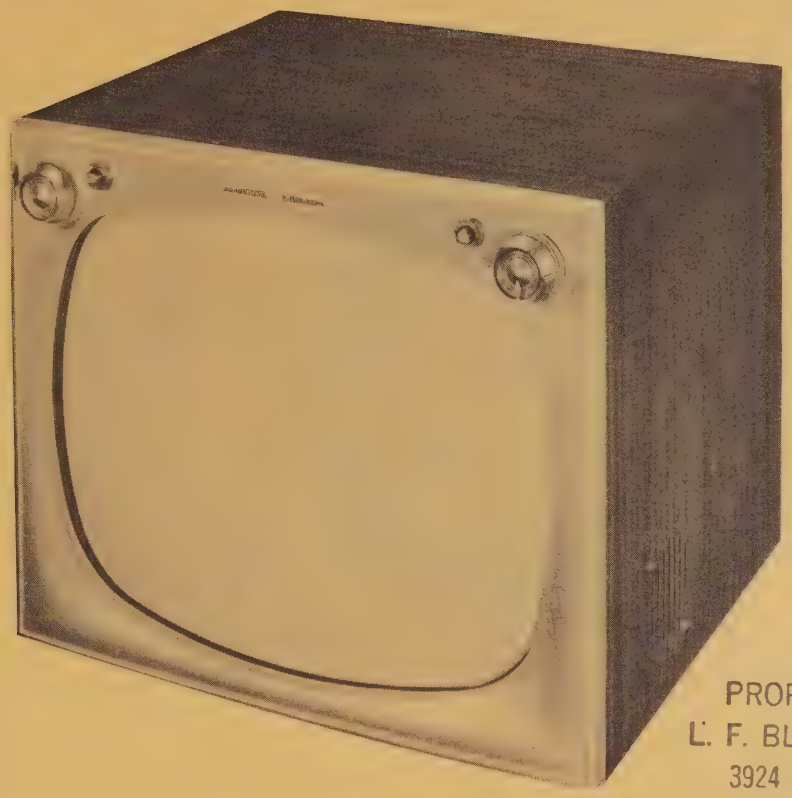
RF TUNER-RIGHT SIDE

RETMA MEMBER

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



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DENVER, COLORADO

TRUETONE MODEL
2D2725B

TRADE NAME	Truetone Model 2D2725B
SUPPLIER	Western Auto Supply Co., 2107 Grand Avenue, Kansas City, Mo.
TYPE SET	Television Receiver
TUBES	Thirteen
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 115 Watts, 1 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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TRUETONE MODEL 2D2725B

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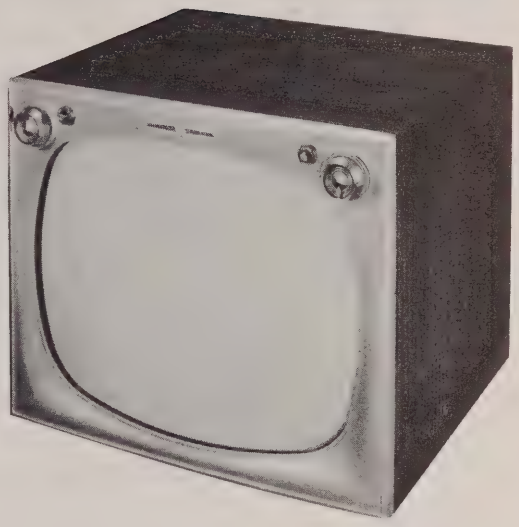
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 push-on type control knobs from the front.
2. Remove tuner antenna lead, 7 metal screws and the rear cover.
3. Remove 2 metal screws and the AC interlock bracket.
4. Remove 2 speaker leads, picture tube socket, ion trap, yoke clamp, HV lead and control cable plug.
5. Remove 2 metal screws and the upper right hand control bracket.
6. Remove 2 metal screws from the bottom holding the 2 (two) bottom support brackets.
7. Remove 5 metal screws holding the 2 upper support brackets and tuner support bracket.
8. Remove the chassis.
9. Remove 2 metal screws and upper left hand control panel.
10. Remove 2 nuts and the speaker.



CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

TRUETONE MODEL 2D2725B

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of the VHF oscillator it is necessary to remove the chassis from the cabinet. (See disassembly instructions).

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube and safety glass cleaning, it is necessary to remove the chassis and picture tube (See disassembly instructions).

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location see tube placement chart).

FUSES

A 4.7Ω fusible resistor (R66) is used for LV power supply protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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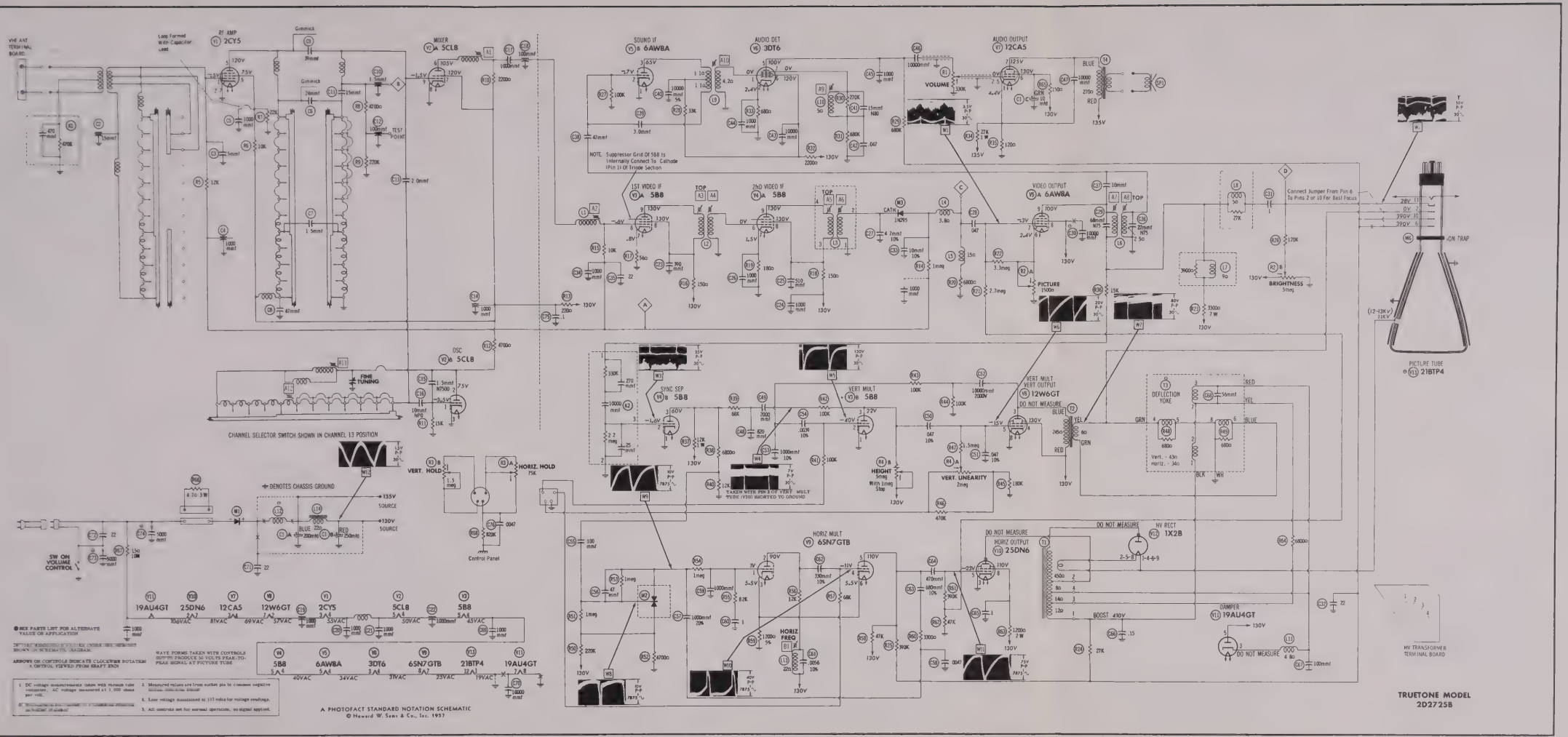
TRUETONE MODEL
2D2725B
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
DENOTES CHASSIS GROUND
SW ON VOLUME CONTROL
VHF ANT TERMINAL BOARD
RF AMP V1 2CY5
MIXER V2 A 5CL8
OSC V2 B 5CL8
SOUND IF V5 B 6AW8A
AUDIO DET V6 12CA5
AUDIO OUTPUT V7 12CA5
1ST VIDEO IF V3 A 5B8
2ND VIDEO IF V4 A 5B8
VIDEO OUTPUT V5 A 6AW8A
SYNC SEP V4 B 5B8
VERT MULT V3 B 5B8
VERT MULT VERT OUTPUT V8 12W6GT
HORIZ MULT V9 6SN7GTB
HORIZ OUTPUT V10 25DN6
HV RECT V12 1X2B
DAMPER V11 19AU4GT
PICTURE TUBE V13 21BTP4
DEFLECTION YOKE
HV TRANSFORMER TERMINAL BOARD
VOLUME
PICTURE
BRIGHTNESS
HEIGHT
VERT. LINEARITY
HORIZ. HOLD
VERT. HOLD
FINE TUNING
HORIZ FREQ
BOOST 410V
DO NOT MEASURE
Control Panel
Connect Jumper From Pin 6 To Pins 2 or 10 For Best Focus
ON TRAP
NOTE. Suppresser Grid Of 5B8 Is Internally Connect To Cathode (Pin 1) Of Triode Section
TAKEN WITH PIN 3 OF VERT. MULT TUBE (V3B) SHORTED TO GROUND
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION OF CONTROL VIEWED FROM SHAFT END
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
19AU4GT 25DN6 12CA5 12W6GT 2CY5 5CL8 5B8
5B8 6AW8A 3DT6 6SN7GTB 21BTP4 19AU4GT
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Measured values are from socket pin to common negative (chassis) unless otherwise noted.
3. Line voltage maintained at 117 volts for voltage readings.
4. All controls set for normal operation, no signal applied.

TUBE PLACEMENT CHART

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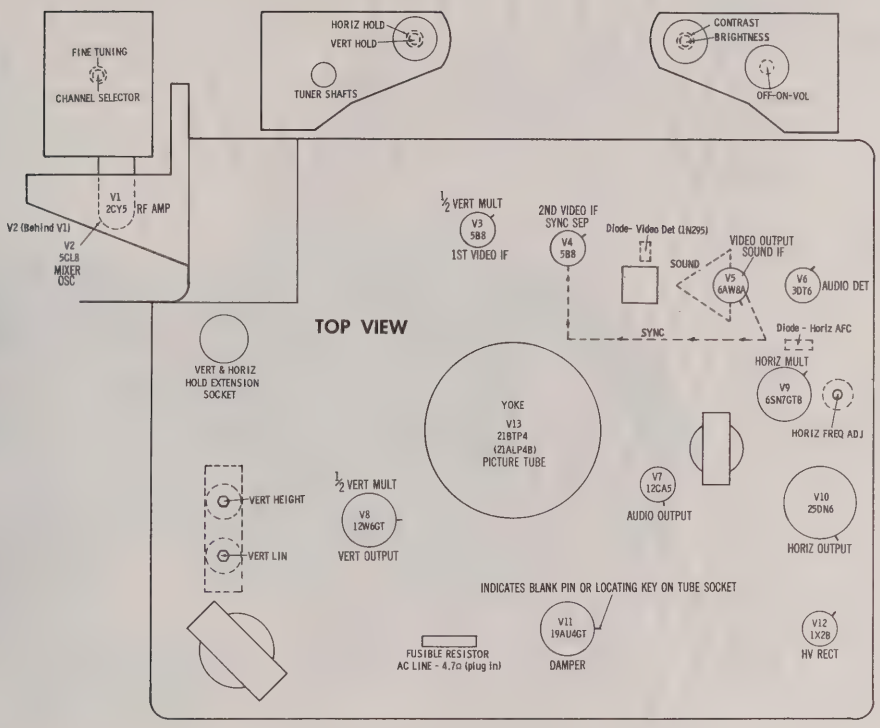


TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

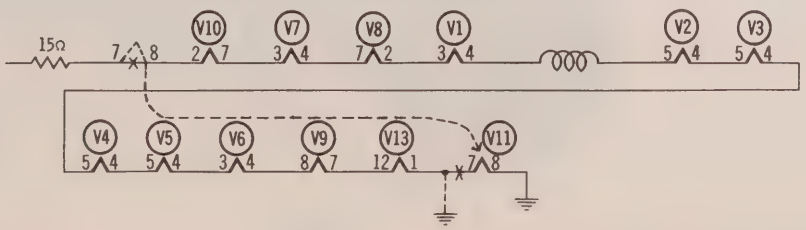
POWER SUPPLY FAILURE
No raster, no sound - Fusible Resistor (R66), Rectifier (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, Diode (M3), V5
No pic, no sound, has snow - V1, V2
No pic, has sound, has raster - V5, V13
Has pic, no sound - V5, V6, V7

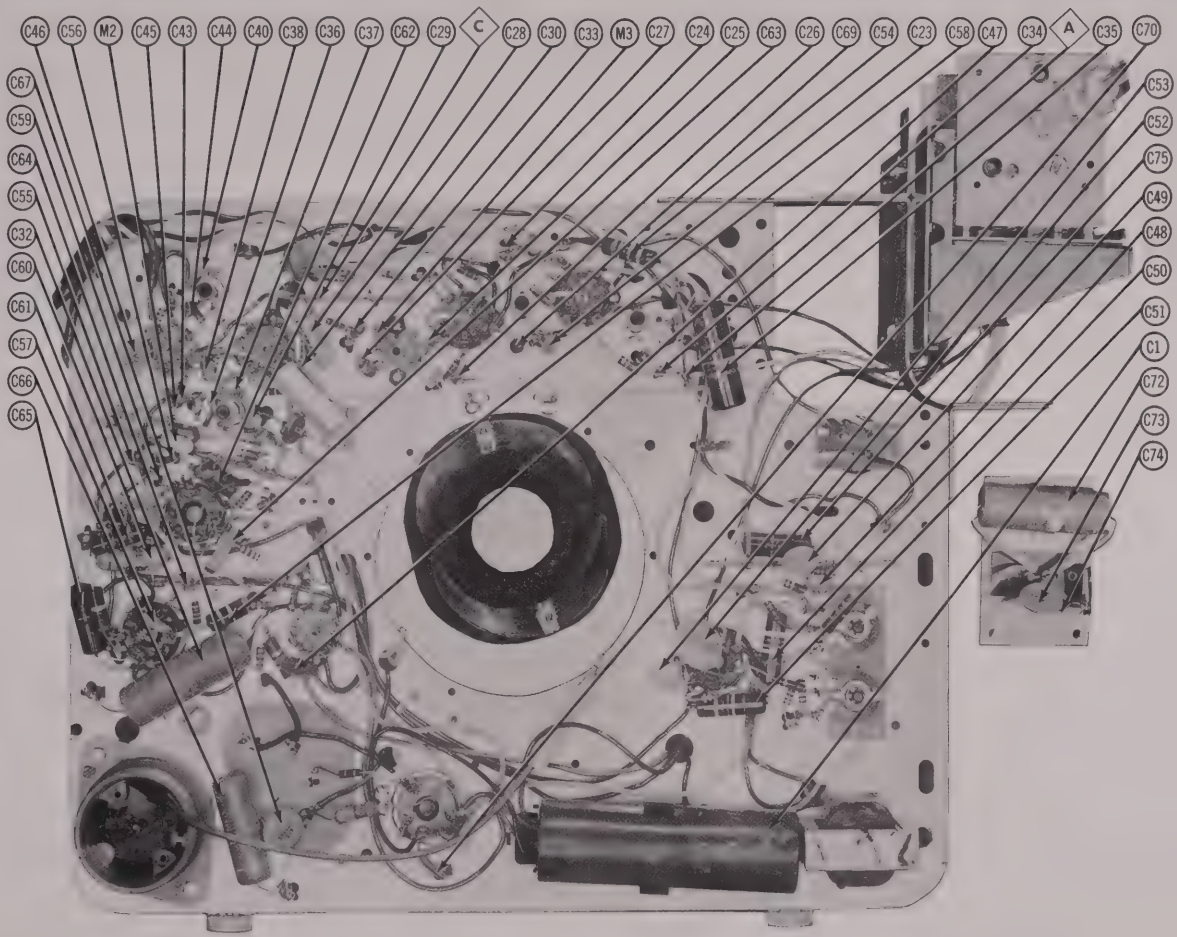
SYNC FAILURE
No vert. sync - V4
No horiz. sync - V4, Diode (M2)
No vert. or horiz. sync - V4

SWEEP FAILURE
No raster, has sound - M2, V9, V10, V11, V12, V13
No vertical deflection - V3, V8
Poor vert. linearity or foldover - V3, V8
Poor horiz. linearity or foldover - V9, V10, V11
Narrow picture - V9, V10, V11, M1
Vert. off freq. - V3, V8
Horiz. off freq. - V9

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative (See circuit below).



TRUETONE MODEL 2D2725B



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The High Voltage lead should be securely taped and kept away from the chassis.
Keep all test equipment leads as short as possible.

VIDEO IF ALIGNMENT

Remove the mixer-osc. tube and replace with a 5CL8 having pin 1 removed to reduce the possibility of erronious indications.
Connect the negative lead of a 3 volt bias supply to point Ⓐ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	1000MMF	High side to point Ⓑ. Low side to chassis.	44.25MC (10MC Swp)	42.75MC 45.75MC	Any non-interfering channel	Vert. Amp. thru detector (Fig. 1) to pin 9 (plate) of 5B8 (V3). Low side to chassis.	A1, A2	Adjust for response similar to Fig. 2 with markers in proper position.
2.	"	High side to pin 6 (grid) of 5B8 (V3). Low side to chassis.	"	"	"	Vert. Amp. thru detector (Fig. 1) to pin 9 (plate) of 5B8 (V4). Low side to chassis.	A3, A4	"
3.	"	High side to pin 6 (grid) of 5B8 (V4). Low side to chassis.	"	"	"	Vert. Amp. thru 10K to point Ⓒ. Low side to chassis.	A5, A6	"
4.	"	High side to point Ⓑ. Low side to chassis.	"	"	"	"		Retouch A1 thru A6 as needed to obtain response on scope similar to Fig. 3.

SOUND IF ALIGNMENT

Set contrast control fully clockwise and volume control at its center range position.
Use only enough generator output to provide usable indication on VTVM.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	100MMF	High side to point Ⓒ. Low side to chassis.	Not used	4.5MC (400∿ 30% AM Mod.)	Any non-interfering channel	Vert. Amp. thru detector (Fig. 4) to point Ⓓ. Low side to chassis.	A7, A8	Turn A7 fully clockwise. Turn A8 fully counter clockwise. Adjust A7 counter clockwise for MINIMUM 400∿ indication on scope.
6.	"	"	4.5MC (15KC Swp)	Not used	"	Across secondary of audio output (transformer)	A8, A9, A10	Turn A9 fully counter clockwise, then clockwise for maximum scope indication. Adjust A10 for maximum scope indication. Adjust A8 clockwise for maximum scope indication.
7.	Remove sweep generator and connect the antenna to the antenna terminals. Replace original mixer-osc. tube (V2) in its socket. Tune in a strong signal and retouch A9 for MINIMUM buzz. Repeat steps 5 and 6 if necessary for best sound.							

OSCILLATOR ALIGNMENT

Turn the channel selector to the highest high band channel (7-13) operating in the area and set the fine tuning to the center of its range. Adjust the high band oscillator slug (A11) with an insulated hex alignment tool for best picture and sound. Repeat for low band channels (2-6) adjusting the low band oscillator slug (A12) for best picture and sound.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

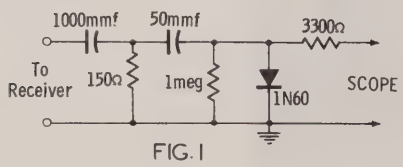


FIG. 1

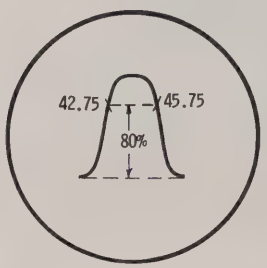


FIG. 2

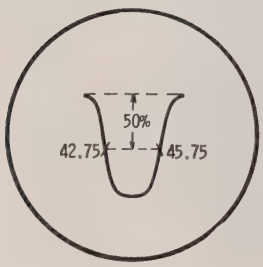


FIG. 3

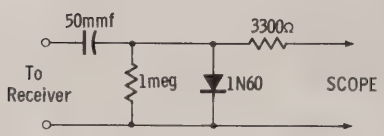
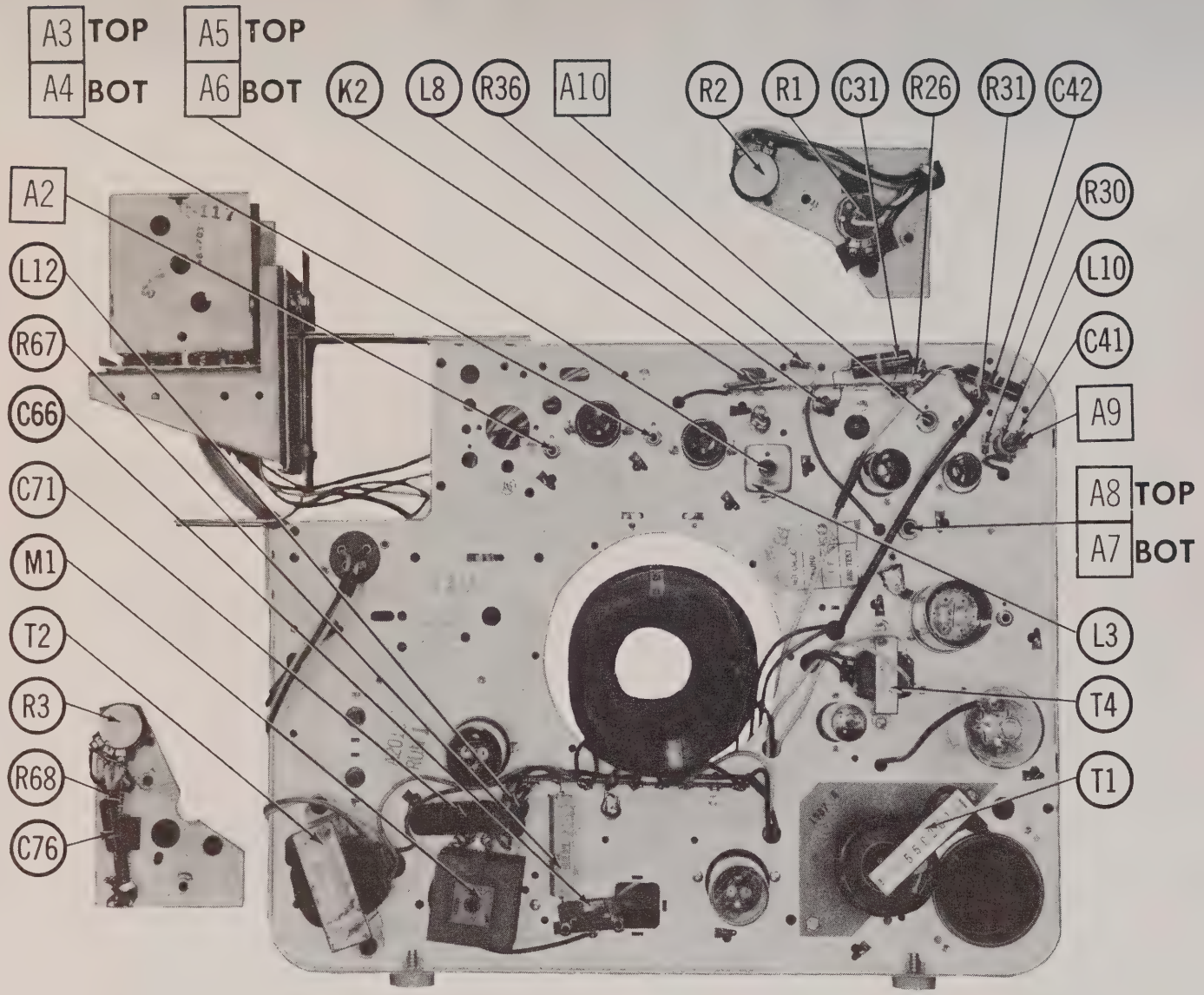


FIG. 4



CHASSIS TOP VIEW

TRUETONE MODEL
2D2725B

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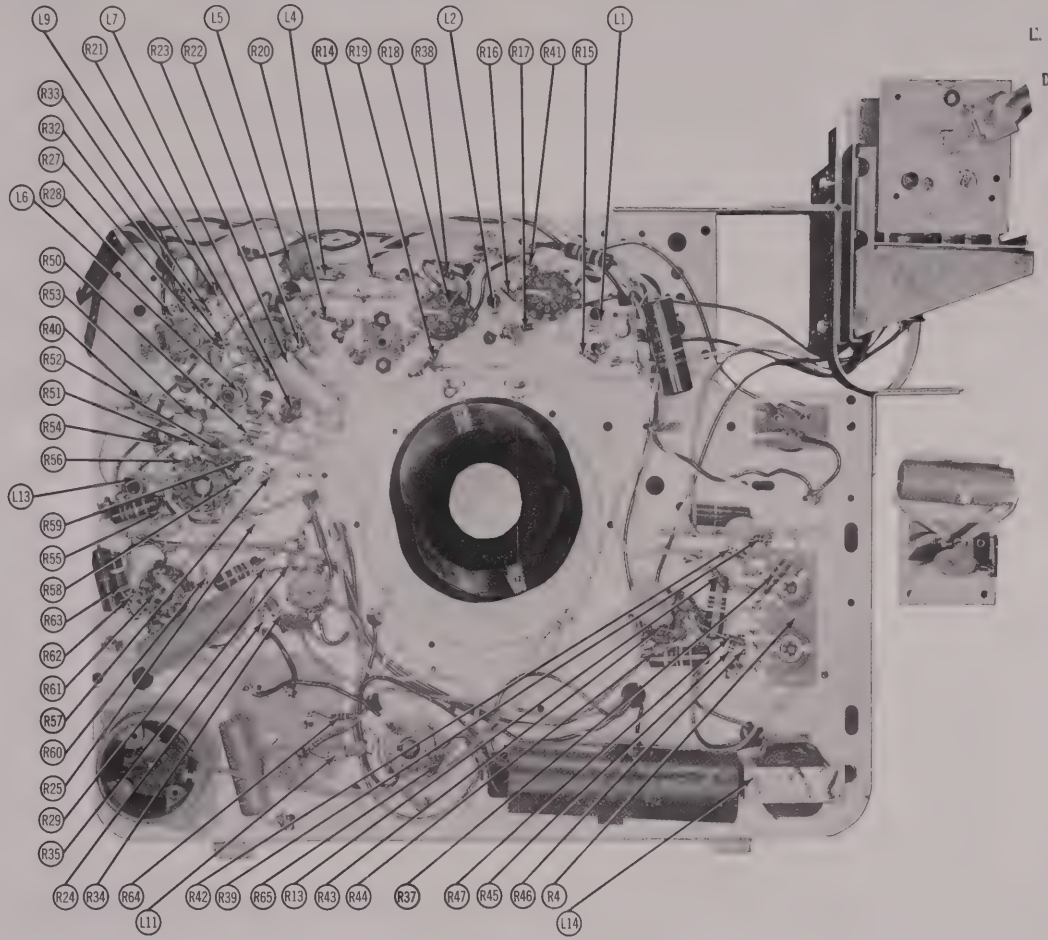
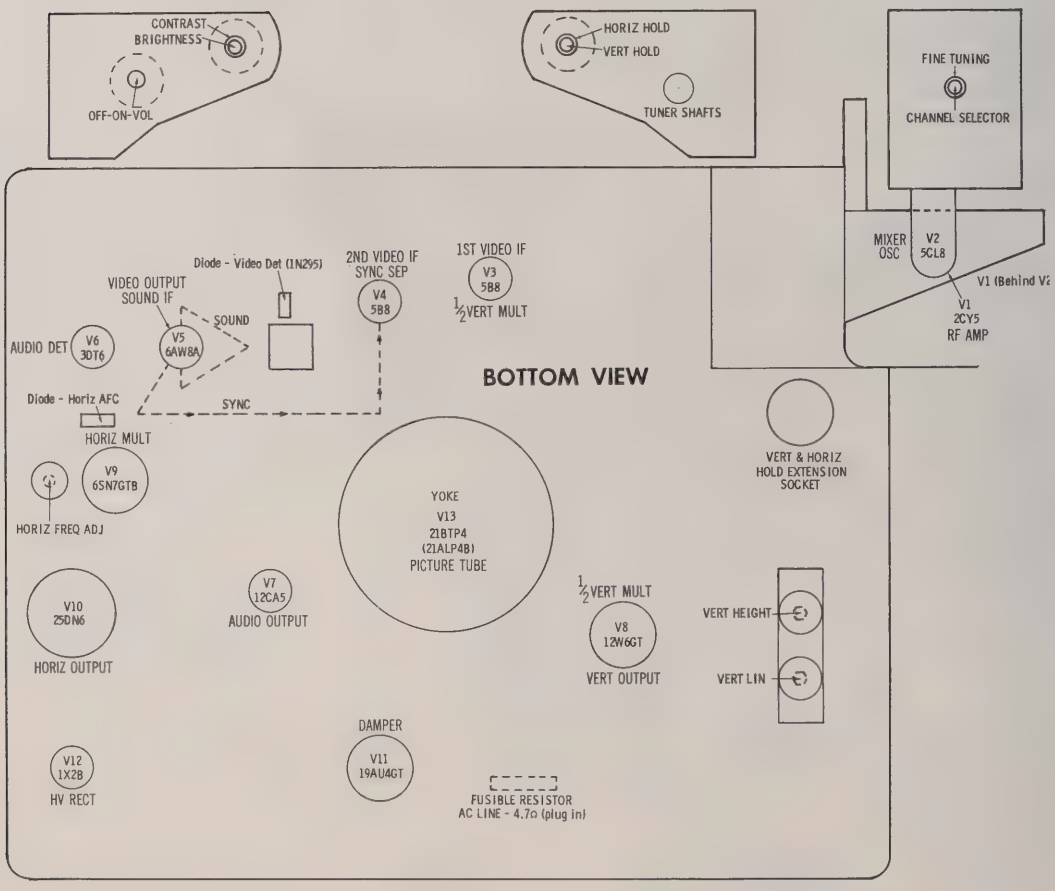


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

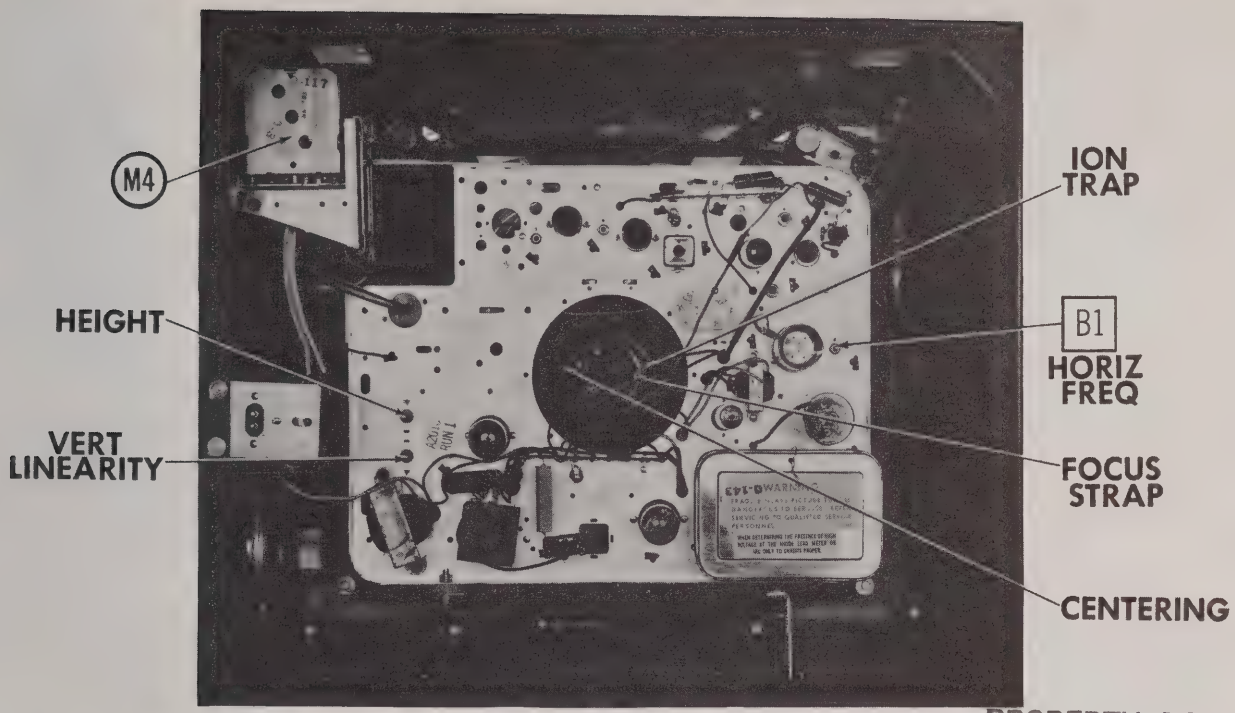
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2CY5	1Meg	0Ω	12.5Ω	12Ω	†220Ω	†7500Ω	0Ω		
V2	5CL8	15K	†4700Ω	0Ω	11Ω	12Ω	†2200Ω	†220Ω	0Ω	225K
V3	5B8	0Ω	•1.1Meg	•†1.7Meg	10Ω	11Ω	1Meg	56Ω	†170Ω	†170Ω
V4	5B8	0Ω	2.2Meg	†7500Ω	9Ω	10Ω	.2Ω	180Ω	†170Ω	†170Ω
V5	6AW8A	0Ω	100K	†35K	7.5Ω	9Ω	•180Ω	1.4Meg	†22Ω	†3300Ω
V6	3DT6	4.2Ω	680Ω	7.5Ω	6.5Ω	‡680K	†2200Ω	680K		
V7	12CA5	120Ω	35Ω	17Ω	15Ω	35Ω	†170Ω	†290Ω		
V8	12W6GT	TP	12.5Ω	†265Ω	†22Ω	•2Meg	TP	15Ω	0Ω	
V9	6SN7GTB	2Meg	†12K	1200Ω	•90K	†47K	1200Ω	5Ω	6.5Ω	
V10	25DN6	TP	22Ω	0Ω	TP	380K	TP	17Ω	†1200Ω	TOP CAP ‡12Ω
V11	19AU4GT	NC	TP	¶	NC	†22Ω	TP	4Ω	0Ω	
V12	1X2B	PINS 1 THROUGH 9 HAVE INFINITE RESISTANCE								TOP CAP ‡462Ω
V13	21BTP4	4Ω	11Ω	PIN 6 27K	PIN 10 27K	PIN 11 260K	PIN 12 5Ω			

† MEASURED FROM OUTPUT OF M1.
‡ MEASURED FROM PIN 3 OF V11.
• THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION
¶ THIS READING CAN VARY GREATLY, (10KMINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART



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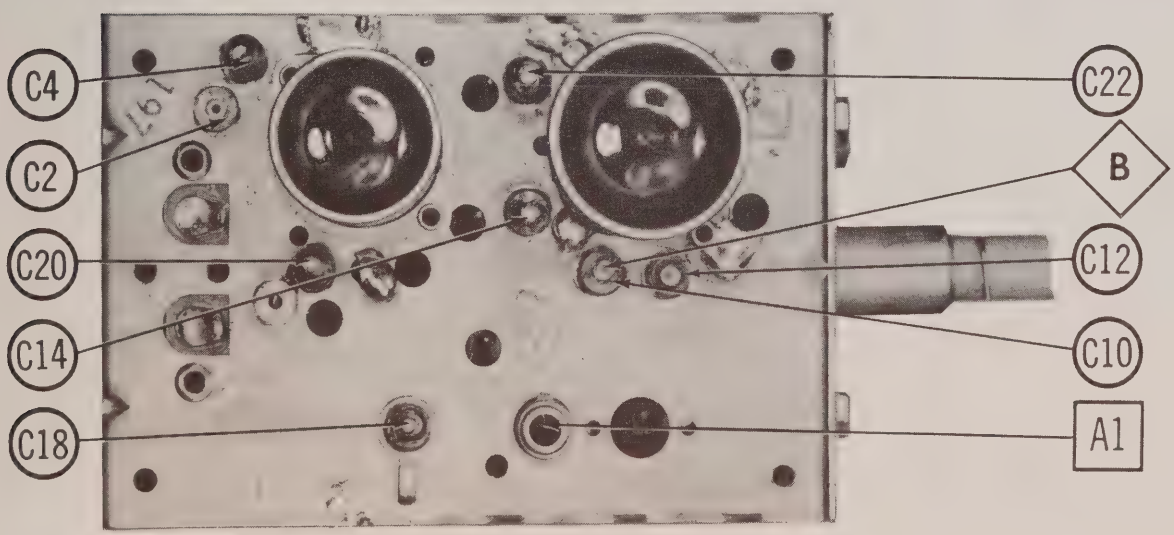
CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern. If the horizontal hold control fails to maintain sync, set it to the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. Check other channels and if necessary, readjust B1 SLIGHTLY for best sync on all channels.



RF TUNER TOP VIEW
SET 361 FOLDER 14

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	3CY5	
V2	Mixer-Oscillator	5CL8	
V3	1st IF Amp -Vert Mult.	5B8	
V4	2nd IF Amp -Sync Sep	5B8	
V5	Video Output-Sound IF	6AW8A	
V6	Audio Detector	3DT8	
V7	Audio Output	14CA5	
V8	Vert. Mult.-Vert. Output	12AV6GT	
V9	Horiz. Mult	6BN7GTB	
V10	Horiz. Output	25DN8	
V11	Damper	19AU4GT	
V12	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	TRUETONE PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V13	E19TP4 E14LP4B	E14LP4B ①	E14LP4B/E14LP4A ②	E19TP4 ① E14LP4A ② E14LP4B ①	① Silver screen -'65 ② Aluminized
		E14LP4	E14LP4		
		E14LP4A ②			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	200	150	45A2R	PR3-G13	XCC02B	WT320		D-095 MT-1510	R2213 *
D	220	150							
C	50	150							

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT.	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	15									
C3	5			BPD-00005	DD-050	L10V5	ED-5	ET-555	5TCCD-V5	
C4	.0005			EF-001	MPT-1000				502C-D1	
C5	.0005			BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C6	68									
C7	.5			NPO-SI 1.5	TCZ-1R5	C10V15C	TCO-1.5	ET-5515	5TCCD-V15	
C8	47			BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C9	39									
C10	5			BPD-000015	DD-150	L10Q5	ED-15	UC-5415	5GA-Q15	
C11	15									
C12	100					C10Y2C				
C13	2.0									
C14	.0005			EF-001	MPT-1000				502C-D1	
C15	1.5									N750
C16	10									5MM
C17	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C18	100									
C19	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C20	1000			EF-001	MPT-1000				502C-D1	
C21	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C22	1000			EF-001	MPT-1000				502C-D1	
C23	330		47A3S8		DD-331	L10Y33	ED-390	UC-5339	5GA-Y33	
C24	1000		47A252	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C25	510		24TA5S1				ED-510			
C26	1000		47A252	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C27	4.7		47B403-0	NPO-SI 4.7	TCZ-4R7	CTA8V47C	TCO-4.7	ET-5547	5TCCD-V47	10%
C28	.047	300	46P47473L2	BPD-05	DF-503	CUB3S47		ET-5347	GEM-4547	
C29	68		47-835							NT9
C30	.0005		47A234	BPD-01	DD-102	BYA5DI	ED-01	DC511	5GEK-01	Note 1
C31	1	300	46B71041L3	P288N-1	DF-104	CUB3P1		GEM-3101	2TM-P1	
C32	.22	600	46B73241L3	P668N-23		CUB3P22		GEM-6023	6TM-P22	
C33	10		47CA3AA100X	NPO-SI 10	TCZ-10	CTA8Q1C	ED-10	DC531	5TCCD-Q1	10%
C34	1000		47A250	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C35	.22	200	46B73S41L3	P288N-23		CUB3P22		GEM-3023	2TM-P22	
C36	22		47-834							
C37	10		47A160-11	SI 10	D5-100	L75Q1	GP-10	UC-541	5GA-Q1	NT5
C38	47		47CA3AA470M	SI 47	D5-470	L75Q47	GP-47	UC-5447	5GA-Q47	
C39	3.0		47A307			C10V3C	TCO-3	ET-553		5%
C40	10000		47A254	BPD-01	DD-103	BYA5SI	ED-01	DC511	5GEK-01	
C41	15		47B480							N80
C42	.047	300	46P47473L2	BPD-05	DF-503	CUB3S47			GEM-4147	4TM-S47
C43	.0002		47A234	BPD-01	DD-103	BYA5SI	ED-01	DC511	5MK-S1	
C44	1000		47A250	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C45	1000		47A250	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C46	10000		47A234	BPD-01	DD-102	BYA5SI	ED-01	DC511	5GEK-S1	
C47	10000		47A234	BPD-01	DD-103	BYA5SI	ED-01	DC511	5GEK-S1	
C48	820		47-808		D5-831	L10T82	ED-820		5GA-T82	
C49	2000		47A295	BPD-003	DD-303	BYA3DD	ED-003	DC523	5GEK-D3	
C50	.047	200	46P47473E2							10%
C51	.047	200	46P47473E2							10%
C52	10000	3000	47-706	P2584CM-01				GEM-3101		
C53	1000		47A586	1484-1000		L10DI	KD-1000	MCM58I	MS-S1	10%
C54	.039	400	46P7392E4	1484-3900		1S5D39			MS-339	10%
C55	100		47CA3DA101M	SI 100	D6-101	L79T1	GP-100	UC-551	5GA-T1	
C56	47		47CA3DA470M	SI 47	D6-470	L79Q47	GP-47	UC-5447	5GA-Q47	
C57	1000		47-805	DI 1000	D6-102	L10DI	KD-1000	UC-531	5MCA-T1	
C58	.0047	600	46P7473E4	DI 4700	D6-472	CUB5D47	GP-4700	GEM-5347	5TM-D47	
C59	1000		47A250	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C60	1	200	46B71041L2	P288N-1	DF-104	CUB3P1		GEM-301	2TM-P1	
C61	.0056	400	46B3S56E4	1464-0056		1DR5D6			MS-356	10%
C62	330		47X20D33K	1469-00033	D6-331	5S9J33	CY15C331J		MS-333	10%
C63	680		47X30D68K	1464-00068	D6-681	1R5768			MS-368	10%
C64	470		47-836	BPD-00047	DD-470	BYA2DT47	ED-470	UC-5347	5GA-T47	
C65	1	200	46B71041L2	P288N-1	DF-104	CUB3P1		GEM-301	2TM-P1	
C66	15	600	46B7S54L5	P688N-15				GEM-6015	6TM-P15	
C67	100	3000	47-870	HVD-30-100	D050-101	HVB30T1	HDS-100	DCS51	30CA-T1	
C68	58	3000	47-A837		DC02-560	HVA30Q56	HDS2-56	DCS0468	30CA-S68	
C69	1000		47A250	BPD-001	DD-102	BYA5DI	ED-1000	DC521	5GEK-D1	
C70	10000		47A234	BPD-01	DD-103	BYA5SI	ED-01	DC511	5GEK-S1	
C71	22	200	46B7224L3	P288N-23		CUB3P22		GEM-3023	2TM-P22	
C72	22	600	46B8234L6	P688N-22		CUB6P22		GEM-6023	6TM-P22	
C73	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5GEK-D5	Note 1
C74	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5GEK-D5	Note 1
C75	.1	300	46B71041L3	P288N-1	DF-104	CUB3P1		GEM-301	2TM-P1	
C76	.0047	800		BPD-0047	DE-472	CUB5D47	GP-4700	GEM-5347	5TM-D47	

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIS-TANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	330K	1	225J9001	B-60	A47-500K-Z	QS3-132	U40	Volume
B	Shaft			Not Req.	820-3	Not Req.	Not Req.	
C	Switch				KB-1	SWE-12	US-28	
R2A	1500Ω	1	225J9003	F1-7	RTV-532	⟨ QJ-1044	UE36	Picture
B	5Meg			R12-84	Not Req.		Not Req.	Brightness
R3A	75K	1	225J9002	F1-30	RTV-614		US035	Horiz. Hold
B	1.5Meg			R12-64	Not Req.	⟨+	Not Req.	Vert. Hold
R4A	4Meg		25B1386					Vert. Linearity
B	5Meg							Height-with 1Meg stop

* Concentrikit Equivalent K-2 Kit, Base Elements & Shafts R1T-109, P1-U2 (Panel) R1T-141, R1-136 (Rear)

** Concentrikit Equivalent K-3 Kit, Base Elements & Shafts R1-135, P1-U3 (Panel) R1-138, R1-136 (Rear)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R5	12K			BTS-12K	
R6	10K			BTS-10K	
R7	22K			BTS-22K	
R8	4700Ω			BTS-4700	
R9	22K			BTS-220K	
R10	2200Ω			BTS-2200	
R11	15K			BTS-15K	
R12	4700Ω			BTS-4700	
R13	220Ω		23X20X33RK	BTS-220	
R14	1Meg		23X20X105K	BTS-1Meg	
R15	10K		23X20X103K		
R16	150Ω		23X20X151K	BTS-150	
R17	56Ω		23X20X560K	BTS-56	
C18	150Ω		23X20X151K	BTS-150	
R19	180Ω		23X20X181K	BTS-180	
R20	6800Ω		23X20X682K	BTS-6800	
R21	5.7Meg		23X20X575K	BTS-5.7Meg	
R22	3.3Meg		23X20X335K	BTS-3.3Meg	
R23	2300Ω	7	34-1123	PWT-2300	
R24	37K		23X20X373K	BTS-37K	
R25	390K		23X20X394K	BTS-390K	
R26	130K		23X20X134K	BTS-130K	
R27	100K		23X20X104K	BTS-100K	
R28	33K		23X20X333K	BTS-33K	
R29	680K		23X20X684K	BTS-680K	
R30	470K		23X20X474K	BTS-470K	
R31	680K		23X20X684K	BTS-680K	
R32	3300Ω		23X20X222K	BTS-2200	
R33	680Ω		23X20X681K	BTS-680	
R34	37K	1	23X20X373K	BTA-37K	
R35	130Ω		23X20X131K	BTS-130	
R36	15K		23X20X153K	BTS-15K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R37	12K	1	23X30X123K	BTA-12K	
R38	6800Ω		23X20X682K	BTS-6800	
R39	68K		23X20X683K	BTS-68K	
R40	12K		23X20X123K	BTS-12K	
R41	100K		23X20X104K	BTS-100K	
R42	100K		23X20X104K	BTS-100K	
R43	100K		23X20X104K	BTS-100K	
R44	100K		23X20X204K	BTS-100K	
R45	180K		23X20X184K	BTS-180K	
R46	470K		23X20X474K	BTS-470K	
R47	1.5Meg		23X20X155K	BTS-1.5Meg	
R48	680Ω		23X20X681K		
R49	680Ω		23X20X681K		
R50	220K		23X20X224K		
R51	1Meg		23X20X105K	BTS-1Meg	
R52	4700Ω		23X20X472K	BTS-4700	
R53	1Meg		23X20X105K	BTS-1Meg	
R54	1Meg		23X20X105K	BTS-1Meg	
R55	82K		23X20X823K		
R56	12K		23X20X123K		
R57	68K		23X20X683K		
R58	47K		23X20X473K		
R59	12000 5%		23X20X123J	BTS-1200 5%	
R60	3300Ω		23X20X333K	BTS-3300	
R61	390K		23X20X394K	BTS-390K	
R62	47K		23X20X743K	BTS-47K	
R63	1200Ω	2	23X40BP123K	BTS-1200	
R64	6800Ω		23X20X682K		
R65	150Ω		23X20X151K	BTS-150	
R66	4.7Ω	3	24B115		
R67	15Ω	10	24-1109	PW10-15	
R68	820K			BTS-820K	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		TRUETONE PART No.	Holladerson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	Horiz. Output Trans.	55-301							
T2	Vert. Output Trans.	55-303	22J900 ①	A-3822 ②					
T3A	Yoke (90°) Horiz.	53-396 ①	DF907 ①	MDF-92	2350N ③ ⑦	Y90F19/43	DY-16A ④	25875 ⑤ Y-16 ⑥ ⑦	A-108X ② Y-41 & NW9
	(23MSB)	341X60001 ②		③ ⑦		⑦ ⑦	⑦		
B	Vert. (19MSB)	③							YC1 ⑤
		24UC001 ⑤							CL1 ⑤

① Use 6 to 1 turns ratio.
② Drill new mounting hole(s).
③ Includes resistors R48, R49 and capacitor C68.
④ Alternate yoke part number.
⑤ Yoke rear cover and centering device.
⑥ Use original yoke damping network.
⑦ Use original rear cover and centering device.
⑧ Yoke clamp.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	TRUETONE PART No.	Holladerson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	4300Ω	3-4Ω	55C306	22J07 ①	A-3026	A-3877 ②	24S81 ①	S-6X	① Drill one new mounting hole

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V C IMP.	TRUETONE PART No.	GUAM PART No.	
SP1	5"	PM	3-4Ω	285D002	5A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	1st. Video IF	51-2187		TV-131	6235	
L2	2nd Video IF	51-2188				
L3	3rd. Video IF	50-585			6634	18 Microhenries
L4	RF Choke	52A507	19-1006		6146	710 Microhenries
L5	Shunt Peaking Coil	51-2102	19-3660			
L6A	4.5MC Trap	51B1496				
B	1st. Sound IF			TV-120		
L7	Shunt Peaking Coil	51-2101	19-4400 *		6134 *	295 Microhenries, wound on 2900Ω resistor
L8	Series Peaking Coil	51A2184	19-3160 ▲		6130 ▲	160 Microhenries, wound on 27K resistor
L9	2nd. Sound IF	51-2166				
L10	Quadrature Coil	51A1957	20-1006 ■	TV-131	1680 ■	
L11	RF Choke	53-243				7.5 Microhenries (IRC part #CLA)
L12	RF Choke				6832	10.7 Microhenries - Note 1

Note 1. Not used in some versions.
* Parallel with 3900Ω resistor
▲ Parallel with 27K resistor
■ Drill new mounting hole.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES		REPLACEMENT DATA						NOTES
	PRI	SEC	TRUETONE PART No	MEISSNER PART No	MERIT PART No.	MILLER PART No.	RCA TYPE No	Ram PART No	Thordarson PART No
L13	22Ω		51-2169	19-1575		6310 *			HS-4

* Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D C RESISTANCE	INDUCTANCE @ CURRENT 1000 (%)	TRUETONE PART No.	Holladerson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No	Triad PART No
L14	250A	22Ω	56 HY	56A250	C5041 ①	C-3996 ①	C-3238 ①	26C44 ①	C-34X

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA	
K2	Antenna Isolation	470MMF, 470K		Centralab	RC-471
K3	Sync Take-off Couplate	270MMF, 25MMF, 10000MMF 330K, 2.2Meg	49A042	Aerovox Centralab Sprague	PA-533 PC-263 ST-3

RECTIFIERS

ITEM No	RATING	REPLACEMENT DATA						NOTES
	CURRENT (Measured)	TRUETONE PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No	MALLORY PART No.	SARKES TARZIAN PART No.	
M1	250A	27C218 ① 27C226 ①	1032A ② 1218 ①②	1N3071 ②	RB3506L ① 1T1 ①②	6B350 ①	350A ①	
M2								

① Selenium type 2. Germanium type. ② 2 Required.

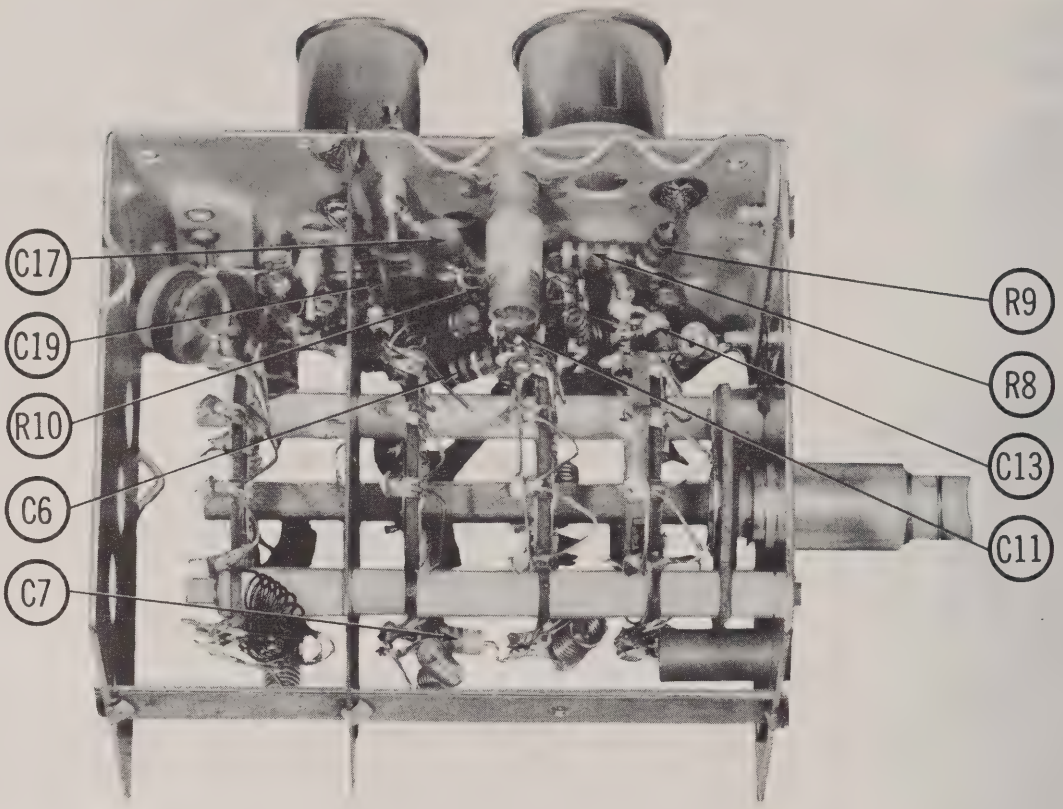
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		
		TRUETONE PART No.	SYLVANIA PART No.	NOTES
M3	1N295	902X1X2B	1N60	Video Detector (Pigtail)

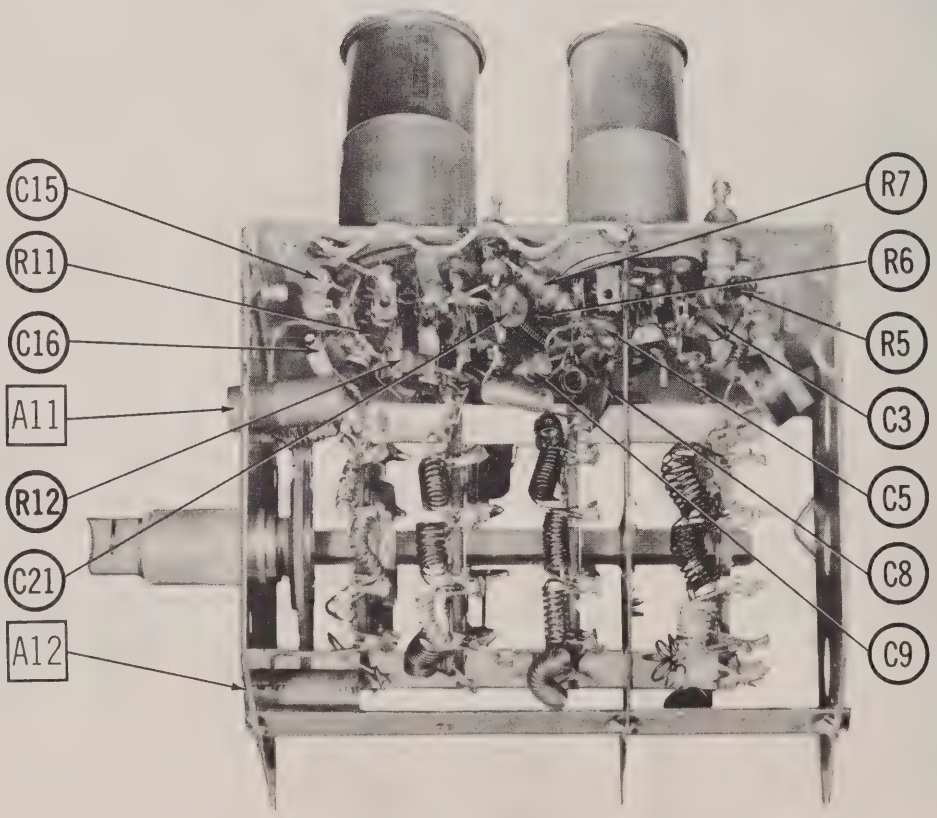
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M4	Tuner	1-1451	VHF
M5	Centering Device	22C001	Includes rear yoke cover
M6	Ion Trap	21B146	
	Yoke Clamp	75A478	
	Rubber Channel	216A002	Yoke mounting
	Safety Glass	22C001	
	Knob	215H005	On-off volume
	Knob	215H006	Fine tuning
	Knob	215C007	Channel selector
	Knob	215H002	Contrast
	Knob	215H002	Brightness
	Knob	215H004	Horiz. hold
	Knob	215H001	Vert. Hold
	Cabinet	241X60001	

TRUETONE MODEL 2D2725B



RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

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ZENITH MODELS
Z511R, Z512F, G, Y (Ch. 5Z01, 5Z02)

ZENITH MODELS
Z511R, Z512F, G, Y (Ch. 5Z01, 5Z02)

TRADE NAME	Zenith Models Z511R (Ch. 5Z01), Z512F, Z512G, Z512Y (Ch. 5Z02)
MANUFACTURER	Zenith Radio Corp. 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC RATING .31 Amp. @ 117 Volts AC (28 Watts)
TUNING RANGE—BROADCAST	535KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.5MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400∿Mod.)	600KC	Across voice coil	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A6	"

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PARTS LIST AND DESCRIPTIONS

ZENITH
MODEL Z511 (Ch. 5Z01)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det.-AVC-AF Amplifier	12AT6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	22-2894	PRS150V30-3020	BBRT42215	TCT3114	TDLT-3	FMT-310	TVA-3448
B	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	100		22-5	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C3	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C4	10000	1000	22-3			BYA10S1				
C5	10000	1000	22-3			BYA10S1				
C6	470	1000	22-6	HVD-15-470	DD30-471	BYA10T47		DC30347	10GAB-T47	
C7	10000	1000	22-3			BYA10S1				
C8	.1	200	22-2780	P288N-1	DF-104	CUB2P1		GEM-401	2TM-P1	
C9	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	Note 1
C10	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C11	10000	1000	22-3			BYA10S1				

Note 1. Used in model Z512 only

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	63-3673	B-69	A47-1Meg-S	Q11-137	U54	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

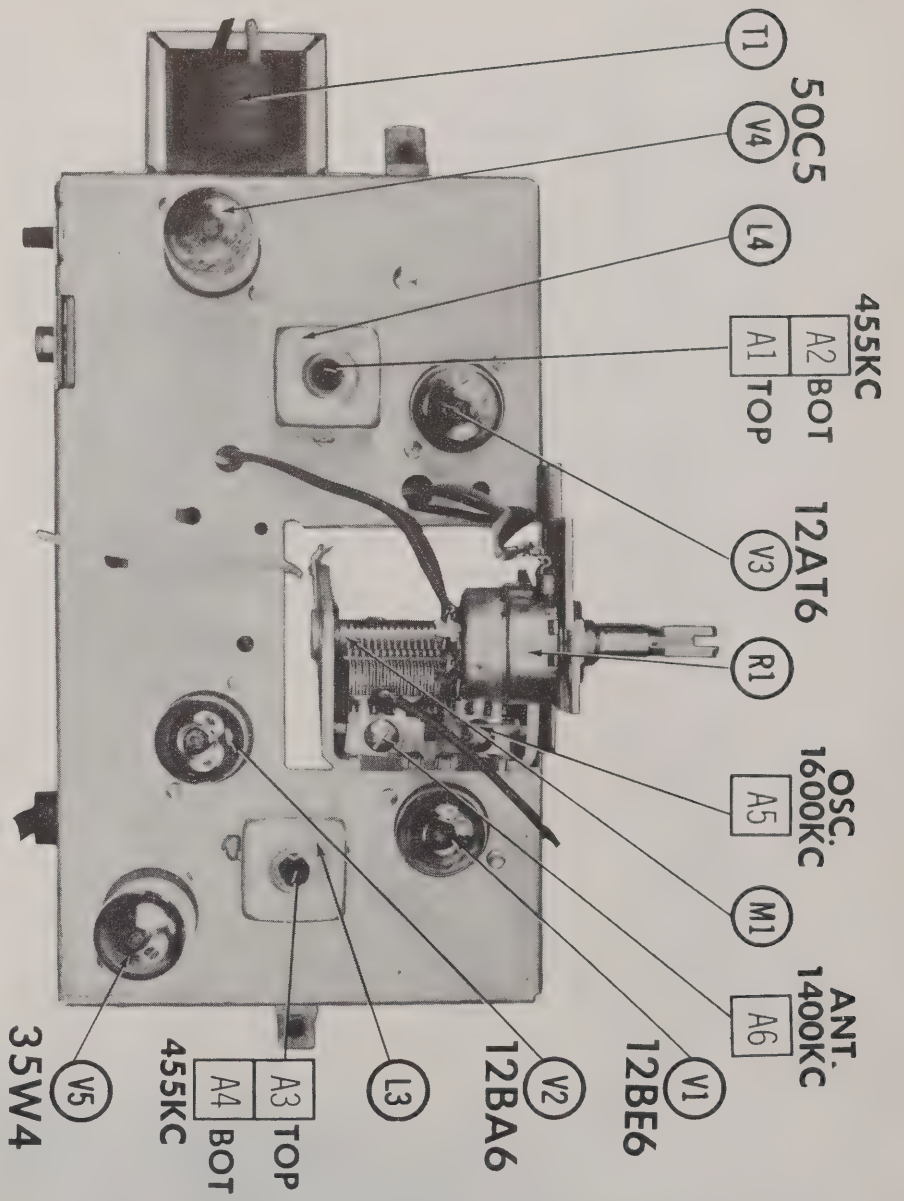
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R2	22K			BTS-22K	
R3	100Ω			BTS-100	Note 1
R4	2.2Meg			BTS-2.2Meg	
R5	47K			BTS-47K	
R6	4.7Meg			BTS-4.7Meg	
R7	470K			BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R8	820Ω			BTS-820	
R9	470K			BTS-470K	
R10	4700Ω			BTS-4700	
R11	150Ω			BTS-150	
R12	1000Ω	1	63-1574	BTA-1000	

Note 1. Some versions may use 68Ω in this application

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2300Ω	1.6Ω	95-1506	Z1006 ①	A-2902①	A-3849①	24S48		① Drill new mtg. hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	49-809 ① ④ 49-808 ② ④	4A07 ④	① Used in Models Z512F, Z512G, Z512Y ② Used in Model Z511R ③ Alternate Part #49-809 ④ Parallel & Phase
SP2	4"	PM	3-4Ω	49-761 ① ③ ④ 49-808 ② ④	4A07 ④	

COILS (RF-IF)

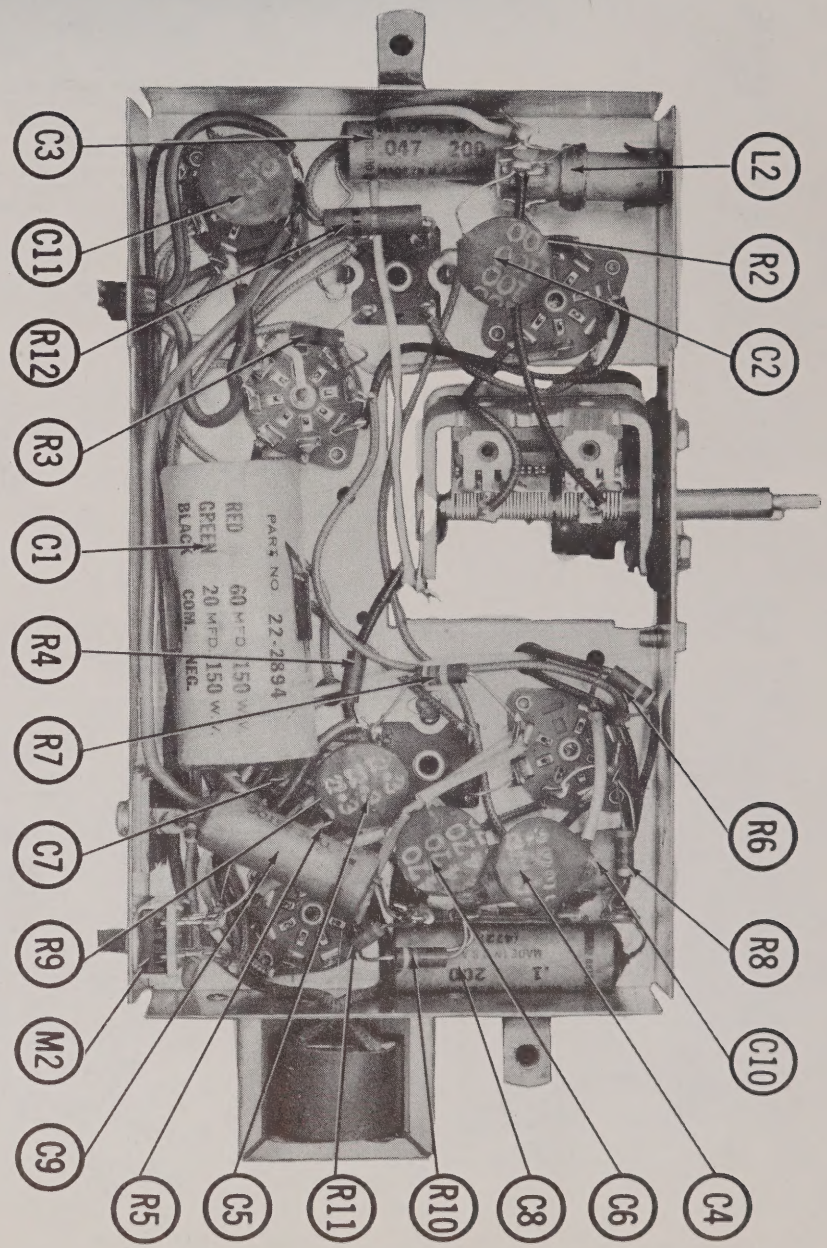
ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Antenna	S-40122				Note 1
L2	Osc. Coil	S-24700	14-1040		71-OSC.	
L3	Input IF	95-1504	16-6780	BC-356	13-PC1	
L4	Output IF	95-1505				

Note #1. Includes Cabinet Back. Part No. S-24958 Used In Model Z511.

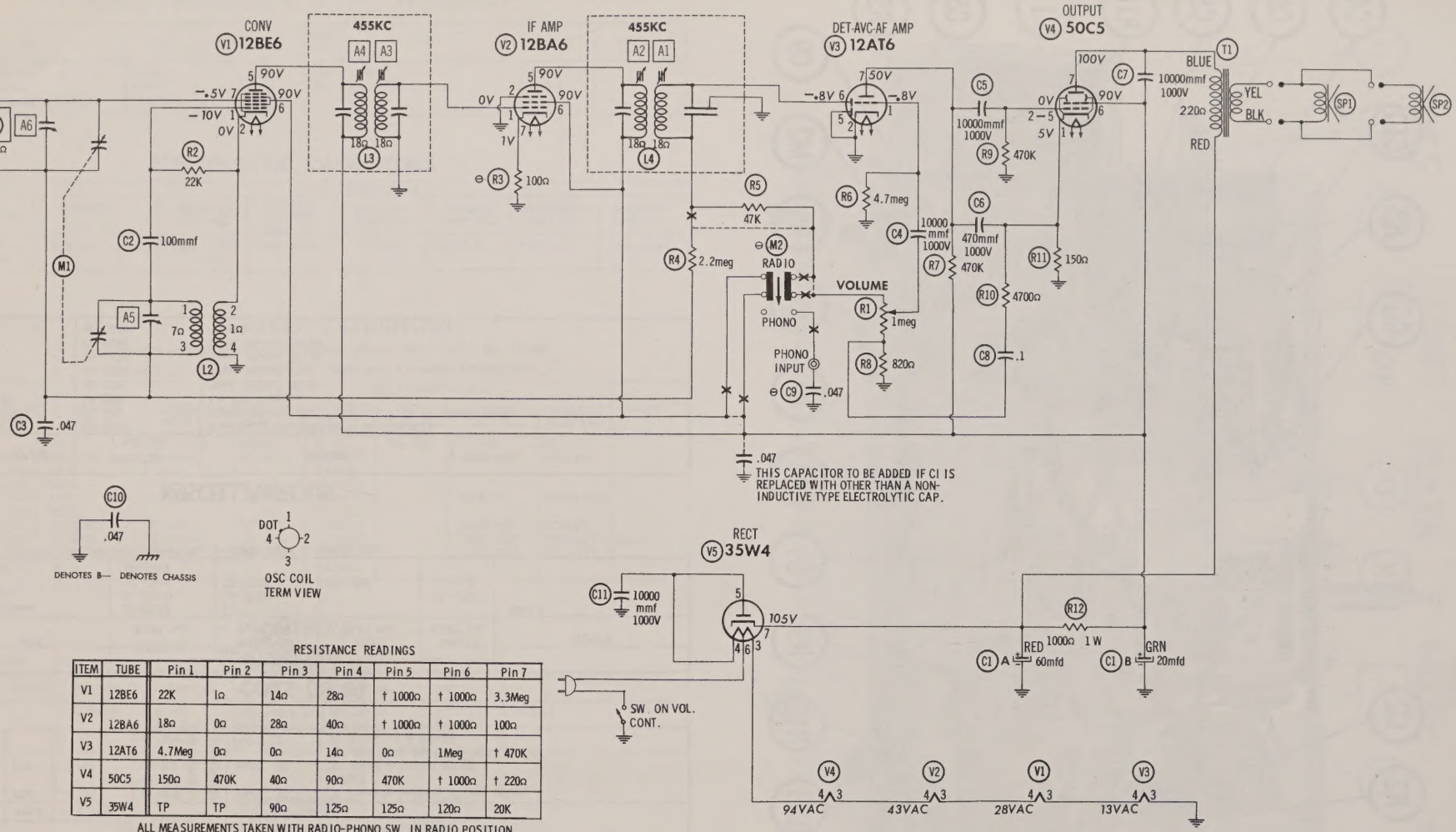
MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M1	Tuning Cap	22-2895	Two Gang (22-380MMF, 10-112MMF)
M2	Switch	85-495	Radio-Phono, Slide Type (D. P. D. T) Model Z512
	Knob	46-1591	On-Off-Volume
	Knob	46-1605	Dial, Model Z512Y
	Knob	46-1603	Dial, Model Z511
	Knob	46-1604	Dial, Model Z512F
	Knob	46-1606	Dial, Model Z512G
	Knob	46-1609	Tuning

CHASSIS—BOTTOM VIEW



ZENITH MODEL Z511 (Ch. 5Z01)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1Ω	14Ω	28Ω	† 1000Ω	† 1000Ω	3.3Meg
V2	12BA6	18Ω	0Ω	28Ω	40Ω	† 1000Ω	† 1000Ω	100Ω
V3	12AT6	4.7Meg	0Ω	0Ω	14Ω	0Ω	1Meg	† 470K
V4	50C5	150Ω	470K	40Ω	90Ω	470K	† 1000Ω	† 220Ω
V5	35W4	TP	TP	90Ω	125Ω	125Ω	120Ω	20K

ALL MEASUREMENTS TAKEN WITH RADIO-PHONO SW. IN RADIO POSITION.
† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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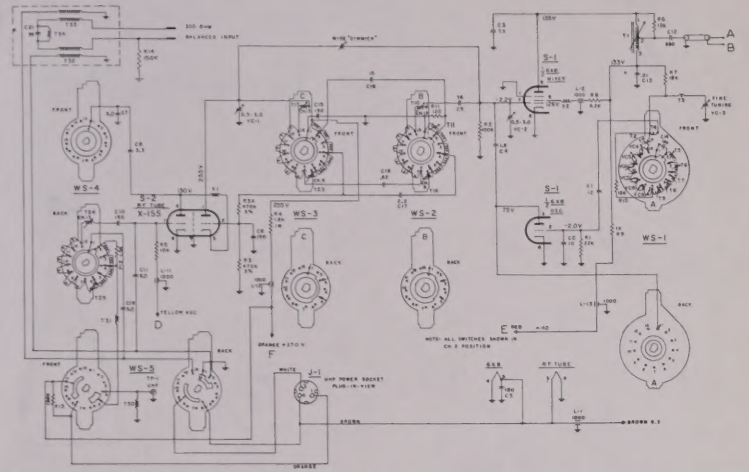
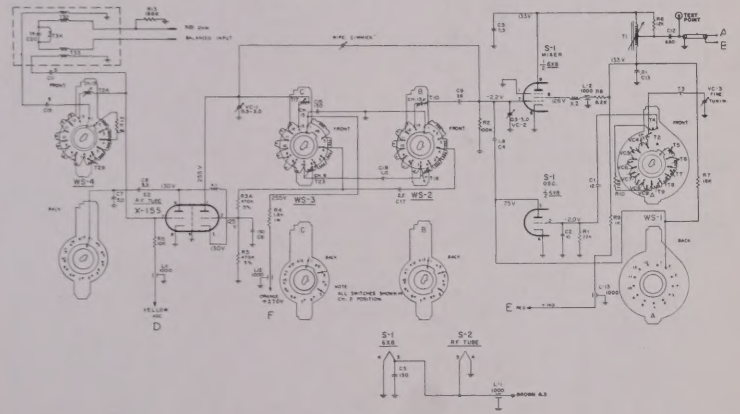
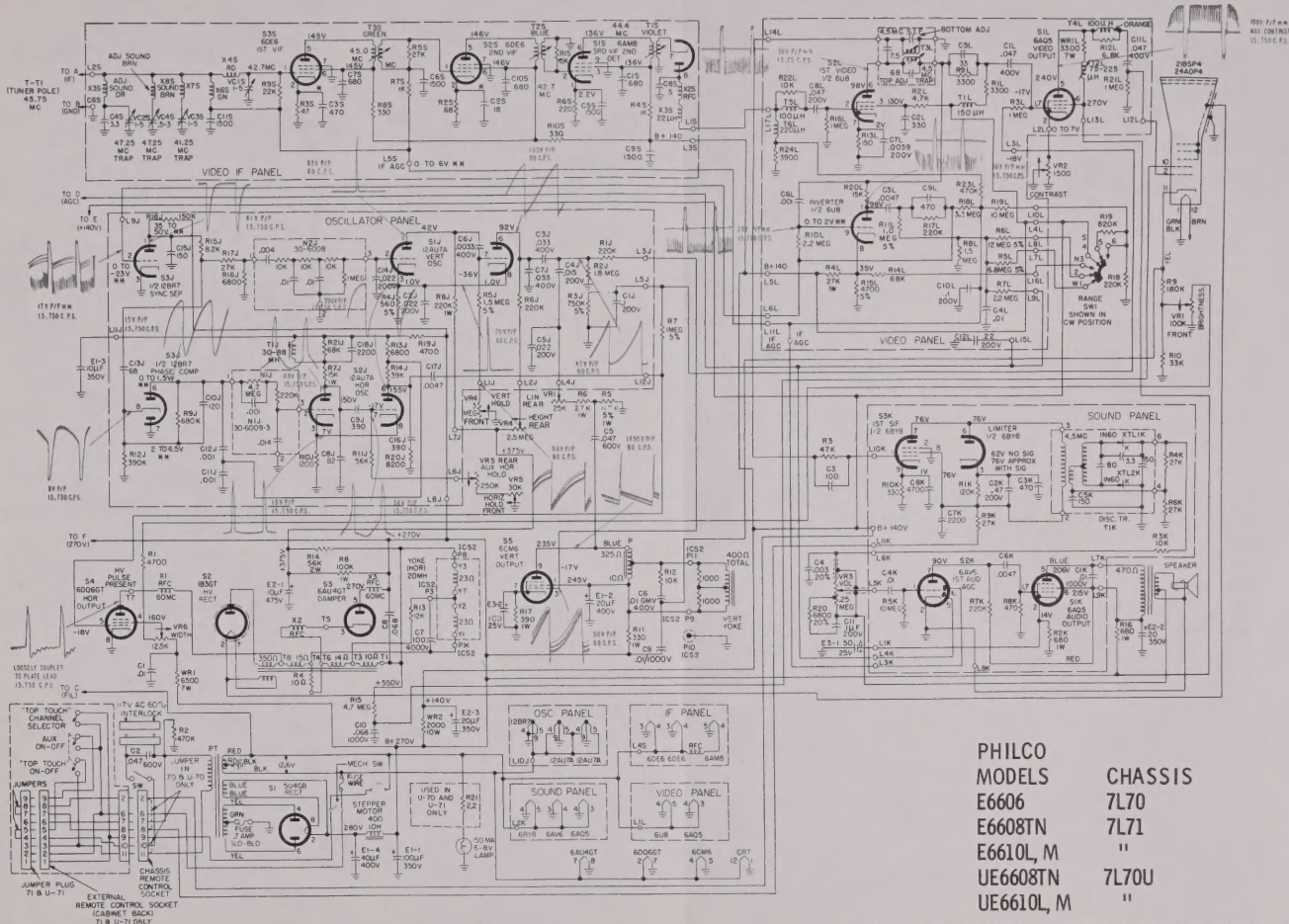


Tuner UHF-VHF T-65 Schematic.

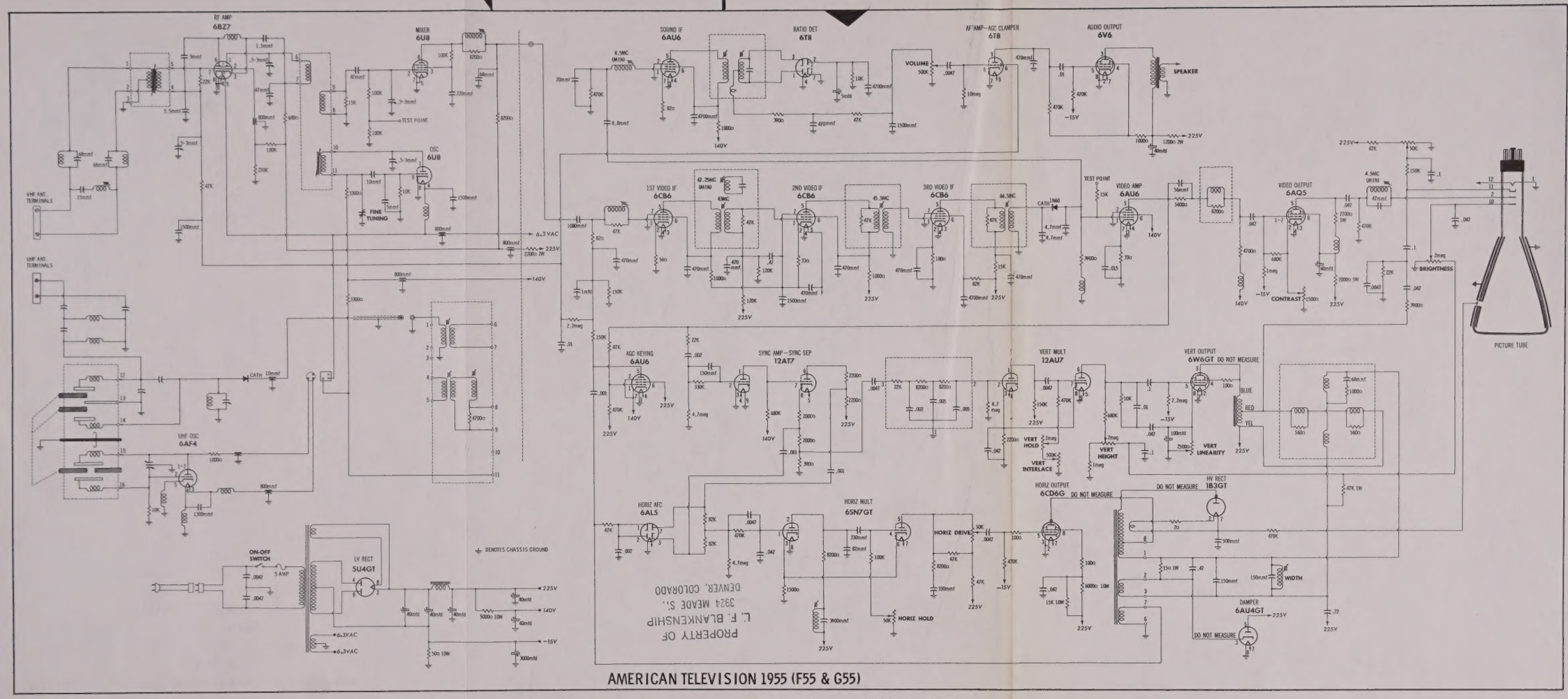


Tuner VHF T-67 Schematic.



PHILCO MODELS	CHASSIS
E6606	7L70
E6608TN	7L71
E6610L, M	"
UE6608TN	7L70U
UE6610L, M	"

SCHEMATIC COURTESY OF PHILCO CORPORATION



AMERICAN TELEVISION 1955 (F55 & G55)

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